The Morison Lectures
ON
THE NEW PSYCHIATRY.

Delivered before the Royal College of Physicians of Edinburgh on March 8th, 10th, and 12th, 1915,

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ABSTRACT OF LECTURE III.[1]
(Delivered on March 12th.)

MR. PRESIDENT AND GENTLEMEN,—Another important psychological mechanism which often serves as an indicator of repressed complexes, not only in nervous disorder, but also in everyday life, is "projection." The peculiarity of this phenomenon is that the effects of the repressed complex are attributed by the individual possessing it not to himself, but to some other person. A few examples will explain my meaning. People who are guilty of some failing, imperfection, or weakness, of which they are ashamed, are exceedingly liable to attribute the same fault to others. If a thief loses an article his first thought is that somebody has stolen it from him, and the man who is ever ready to disbelieve any statement made to him is himself a person who is habitually economical of the truth. The dishonest financier is always on the alert lest somebody should swindle him, and he is exceedingly intolerant of anybody who succeeds in doing so. The man who is unfaithful to his wife is usually suspicious that she may have been unfaithful to him, and how often have we all heard an asylum patient declare that his wife is insane, or a drunkard accuse his consort of insobriety. Self-reproach is so unpleasant to consciousness that it is repressed and sublimated into reproach of other people.

THE NEURONS.

I now propose to discuss various matters that have been elucidated by psycho-analytic methods respecting the neuroses, psychoneuroses, and psychoses. Freud recognises two neuroses proper—viz., neurasthenia and the anxiety neurosis. Probably a few cases of hypochondriasis are due to the same etiological factors as these neuroses and should therefore be included in the same group.

Neurasthenia.

Neurasthenia is a term which hitherto has been used very loosely, and the separation of the anxiety neurosis as a distinct disease is due to the clinical insight of Freud. The term "neurasthenia" is now limited to a class of case which exhibits very definite symptoms, the chief of which is an undue tendency to fatigue. This is well demonstrated in ergographic tracings from neurasthenic patients. In a normal person such tracing shows a gradual increase of power at the beginning of the experiment so that the lever rises more and more with each successive contraction. This is ascribed to the effect of practice. Subsequent contractions remain at the same level before fatigue sets in, when the level rises less and less until, the finger becoming absolutely useless, the tracing becomes a straight line. With a neurasthenic, on the other hand, the initial increase of power due to the effect of practice is not shown. The first few contractions may be of an average height, but fatigue sets in immediately and the contractions become weaker and weaker. The same phenomenon is shown in experiments devised for the purpose of investigating the laws of mental fatigue. In Weygandt's method, for instance, the patient is given a sheet of paper with columns of figures to be added. He starts at the first column and at the end of a minute writes down his result so far as he has gone. Then he passes to the next column, adds for a minute and puts down the result as before, and so on through the whole series. In a normal person at first the effect of practice is noticeable, in that the added portions of the column get longer and longer until, fatigue setting in, they grew shorter and shorter. In the neurasthenic, on the other hand, the added portions shorten from the very first. Mistakes in the addition also occur earlier than in a normal individual. The so-called "irritable eye" exemplifies the muscular fatigue, the patient complaining that the eyes ache on reading for a short time, although no error of refraction can be found. Examination with the perimeter soon fatigues the retina and, unless carried out quickly, the visual field will be found contracted or spiral.

These patients are anxious enough to be busy about their affairs like other people; but all effort, mental or physical, leads to an intense feeling of fatigue. In many cases, even the thought of doing anything causes the patient to tremble and to break into a profuse perspiration. Other symptoms are a sense of pressure on the top of the head, often localised to one spot on the left of the middle line, and various paræsthesias, especially of the joints and muscles and the back of the head over the occipital spine. The last is explained as a "crawling" or "screwy" sensation and was aptly described by one patient, whose case was related to me, as a feeling as if there were a blackbeetle inside the skull lying on its back and kicking to get on its legs again. Feelings of abdominal discomfort also occur and there may be hypochondriacal notions respecting the genito-urinary apparatus. Similar symptoms frequently occur in states of general debility, such as chlorosis, and in the early stages of organic nervous disease such as disseminated sclerosis or general paralysis. In these conditions the case should, of course, not be labelled "neurasthenia"; but when the above symptom-complex occurs independently of any other disease, then we have to deal with a case of true neurasthenia. In all cases of this kind, without exception, there is always to be found one essential etiological factor—viz., sexual excess. In the majority of cases this takes the form of masturbation, but in a few patients the disease is traceable to frequent nocturnal pollutions, and I have come across a still smaller number of neurasthenics who, being habitual roués, owe their neurosis to excessive indulgence in normal sexual intercourse. Such cases differ in recovering easily and rapidly as soon as the cause of their malady is explained and removed. Suitable advice and recommendations as to mental hygiene are the proper remedy; but it is often necessary to carry out a certain amount of psycho-analysis in order to trace and uproot the complexes which constitute the foundation of such irregular sexual impulses.

The Anxiety Neurosis.

The "anxiety neurosis" is characterised, as its name implies, by a persistent state of anxiety or fear, usually without obvious cause, but sometimes initiated by some real cause for anxiety. This state is always out of proportion to its cause, and

[1] Lectures I. and II. were published in THE LANCET of March 20th (p. 583) and 27th (p. 689) respectively.

the other symptoms of the neurosis are exaggerations of the normal physical signs of fear. Such are irregularity and an increased frequency of the pulse, palpitation, anginal attacks, general vasomotor constriction with coldness and blueness of the extremities, dryness of the mouth, perspiration (especially of the hands), polyuria, diarrhœa, respiratory oppression and air hunger, even attacks of asthma, vertigo, tremor, attacks of ravenous appetite, nausea and sometimes actual vomiting, night terrors and insomnia, hyperæsthesia for visual impressions and especially for noises, and a general apprehensiveness. Such patients are liable to exacerbations of their various symptoms in which the feeling of terror may be extremely severe with a feeling of congestion in the head and a dread of impending death. It is even said that there may be temporary loss of consciousness, but I have not seen such a case.

Freud and all who have subsequently investigated the matter are agreed that the anxiety neurosis owes its origin to an accumulation of mental excitement which finds no somatic outlet, and, further, that this excitement is almost always, probably always, of a sexual nature. Accordingly we meet with this neurosis among engaged couples who cannot afford to get married, in widows and widowers, in women whose husbands practise coitus interruptus (this is the commonest cause), in women during the climacteric whose husbands have reached senility, and in patients who with great effort have renounced masturbation. There are other important contributory factors. Heredity is one, and the condition also arises from overwork and exhaustion, especially after severe illness and prolonged watching by the bedside of a sick relative by night as well as by day. Unfortunately the obvious remedy for such a neurosis is usually impracticable, and it is my custom in these cases to seek by means of a short analysis interests of the patient into which his repressed energy may be directed (sublimation of the sexual impulse) and, in the meantime, to prescribe some anaphrodisiac medicine, my favourite mixture for such purposes being a combination of camphor with the extract of black willow.

The Psychoneuroses and Psychoses.

The psychoneuroses and psychoses are on an entirely different plane from the neuroses. The neuroses, as we have seen, owe their origin to existing causes, probably of a chemical nature, at the time of the malady, but the psychoneuroses and psychoses are compromise formations between repressed wishes and the forces which repress them; that is to say that their mechanism is exactly the same as that of dreams. The obvious differences between dreams and the psychoneuroses are that in the one the subject is asleep and desires to go on sleeping, while in the other he is awake; and also that dreams are normal while psychoneuroses are abnormal.

[Dr. Stoddart here illustrated by the imaginary case of a younger step-sister unfairly subordinated to the rest of the family, how the different endings possible to the well-known story of Cinderella might produce ideas of persecution or dementia præcox or hysterical paraplegia.]

Hysteria.

Freud's theory of hysteria depends on the recognition of the infantile development of sexuality. Events occur during childhood which at the time have no sexual significance, but the recollection of them after maturity is disproportionately exciting because puberty has in the meantime incomparably increased the reacting capacity of the sexual apparatus. These unconscious infantile memories influence the whole sexual life of the individual and may be the determining cause of masturbation. Such hypnoid states are subconscious rather than unconscious manifestations of hysteria. Sometimes, however, the phantasies or memories assume an unconscious form and then we have the so-called hysterical attacks. These consist of a series of emotional displays which are rendered comprehensible when the physician has discovered the underlying thought, for he is then able to see that such emotional manifestations are such as might be expected to occur in response to the given stimulus.

Lastly, we have "conversion hysteria" which results from a persistent strife between some painful memory and the restraint of the censor from its coming to the surface, the result of the struggle being a compromise whereby the idea by distortion becomes converted into a somatic symptom, some bodily motor or sensory innervation or inhibition.

Psycho-analysis is to be regarded as the most radical form of treatment of hysteria and other functional mental disorders to be presently discussed, but I might here refer to other methods in common use. Weir-Mitchell's "rest-cure" is quite fashionable at the present time and undoubtedly gives good results in many cases, provided it be used rationally and in combination with some psychical influence at the same time. Suggestion is most commonly used, and Weir-Mitchell's private opinion of the whole procedure was that it acted mainly as a suggestive agency. The prolonged mental and physical rest are beneficial, the removal from home surroundings has the advantage of withdrawing the patient from an environment which has usually proved somewhat irritating, the massage and possibly the electricity tend to improve metabolism, and the over-feeding is well suited to patients who are ill-nourished. Let me say at once, however, that this method is worse than useless in any other condition than hysteria, and even in this disease failures are far from uncommon. Moreover, the expense is often as great as in psycho-analysis.

Hypnotism may be employed with advantageous and often dramatically successful results in hysteria. Hypnosis is much more easily achieved in this disease than in other mental disorders, and it may be used in one of three ways: (1) to get the patient into an extremely suggestible mood so that suggestion of recovery may be given; (2) to recover buried memories; or (3) to get the patient to react emotionally to buried memories.

The Compulsion Neurosis.

The compulsion neurosis is a disease which shows itself in a large number of ways. The patients have a clear intellect and good memory, and they are well orientated in time and place, but they suffer from mental symptoms into which morbidity they have a clear insight. They suffer from irrepressible thoughts which often take the form of metaphysical questionings such as "When was the beginning of all things?" "What existed before that?" "Who created God?" or they attach undue importance to superstitions; or they cannot help repeating in their minds things they have heard. Many suffer from morbid fears or morbid irresistible

impulses. Some of these patients have feelings of *incompleteness* in action, in intellectual problems, in emotional reaction, and in perception. Others have strange feelings of unreality and of depersonalisation, called by Janet psycholeptic crises. Formerly this condition was called "obsessional insanity," a term which was justifiable in that it offered no explanation. The mind is obsessed or besieged by such thoughts, fears, or impulses. Janet advanced a step by recognising what he called a "splitting of consciousness" or "mental dissociation" induced by a "lowering of the psychological tension," the psychical response of a psychasthenic to his environment being inadequate. Freud regards the compulsion neurosis as a disease of the unconscious, and as having a purely sexual basis, regarding the symptoms as substitutions for certain repressed sexual ideas and emotions.

[Dr. Stoddart here discussed Freud's views and those of Dr. Ernest Jones, concluding that psycho-analysis has proved to be the only really successful method of treating the compulsion neurosis, but hypnotism may be used in much the same way as for hysteria—viz.: (1) for suggestion, (2) to recover buried memories, and (3) to obtain an emotional reaction to a repressed complex. He briefly discussed other modes of treatment, and continued:]

Maniacal Depressive Insanity.

Maniacal depressive insanity is a disorder in which the patient is liable to attacks of mania, melancholia, or stupor, these being in some cases accompanied with or replaced by some delusional state. It is useless to attack this psychosis while the patient is passing through one of these acute phases of the disorder. Radical treatment of the disease must be undertaken during a period of sanity or, as the populace would say, during a "lucid interval." It is interesting, moreover, that psycho-analysts, who have had experience of these cases, have come to the conclusion that a very short analysis is most successful in effecting a cure, while a complete analysis, in the Freudian sense, only leads to relapse, but, as I said before, many psycho-analysts of experience differ from me on this point.

Dementia Præcox.

Dementia præcox has been most carefully studied by Jung from a psychological point of view, and the conclusion at which he arrives is that there is a remarkable psychological resemblance between it and hysteria. The complexes and the mechanism of their repression are exactly the same, yet hysteria is an eminently curable disease while dementia præcox is conspicuously incurable. The catatonic symptoms can easily be conceived as purely repressive devices, and it has been definitely proved in some cases that certain stereotyped actions are distorted representations of the fulfilment of repressed wishes; but at the same time we must not lose sight of the fact that these same symptoms also occur in certain organic cerebral diseases whose origin is at least much more organic than psychical. Again, the question is not yet absolutely settled whether dementia præcox is a psychogenic or organic disease. Alzheimer and others have described areas of gliosis in the deepest layers of the cortex, others have discovered fatty degeneration of the nerve cells, others, again, have observed cerebellar changes, all of which might very well be due to excess or defect of certain internal secretions. This idea, surmised by Kraepelin, has been rendered probable by Mott's discovery that certain glands possessing internal secretions, especially the ovaries and testes, are more or less atrophied in dementia præcox. On the other hand, Jung appears to have cured, or at least considerably ameliorated, some cases of dementia paranoides by psycho-analysis only. Jung recognises all these difficulties and gets out of them by supposing that the mental conflicts of dementia præcox give rise to toxins which act deleteriously upon the cerebral substance. I must confess that to me this idea does not appeal very strongly, but Kraepelin, who will have nothing to do with psycho-analysis, is, curiously enough, rather pleased with the suggestion.

The chief characteristic of patients suffering from dementia præcox is that they are living a dream and in the end completely retire from the world of reality (autism). Up to the present very little psychological investigation of the disease has been made, but we hope to learn much from the investigation now going on at Zürich. For the present, therefore, we must regard the pathology of dementia præcox as still undetermined.

Paranoia.

The last disease I must submit for your consideration is paranoia. This is a mental disorder of the fourth or fifth decade as a rule, and it is characterised by the progressive development of systematised delusions. The patients being of a suspicious temperament see hidden meanings in incidents which possess no unusual value for the ordinary man, and from the inevitable accumulation of such misinterpretations they evolve a system of delusions which vary from patient to patient. The cases are divided into two main classes: (1) the eccentrics or mattoids, the borderland cases of insanity, including faddists and cranks of all kinds; and (2) the egocentrics, including patients who suffer from delusions of persecution, jealousy, exaltation, and ill-health (hypochondriacs). All these patients are perfectly clear mentally, have no hallucinations, behave well and can think intelligently apart from their particular delusions, but they are firmly convinced that there is nothing mentally wrong with them, and therefore always feel aggrieved when they are involuntarily placed under care for their malady.

Since the advent of our new psychiatry many patients of the above-mentioned class have been analysed by modern psychological methods all over the civilised world, and the outcome has been the remarkable discovery that paranoia is a psychosis erected on the invariable basis of repressed homosexuality. Naturally enough the idea that a person has homosexual inclinations is usually repugnant to him; he refuses to admit it to himself, and it is repressed into the unconscious. Should such repression fail, the homosexual complex reappears in consciousness in the disguised form of paranoia or, I may add, as dementia paranoides, for it has been shown that the same psychical mechanism is at work in this variety of dementia præcox, designated by Kraepelin in his most recent edition, by the way, as "paraphrenia."

Although psycho-analysis has been successful in elucidating the psychology of this disease the method usually fails as a mode of treatment. I understand, however, that some psycho-analysts have effected a cure and many have alleviated the patient sufficiently to enable him to go about his business with a certain degree of mental comfort

without molesting those people with whom he is brought into contact. Recovery is said to have been effected in a few cases of fairly recent origin by a method which somewhat resembles psycho-analysis, but differs from it in that the physician seeks, in the first instance, to obtain a positive transference before tackling the disease itself. He gets the patient to give a complete history of his life, endeavouring meanwhile to discover incidents and characteristics which have a bearing on his delusional state, and to disclose them. During the whole of this process, which takes 20 to 30 hours, he accepts the patient's point of view throughout until he ultimately gains his whole confidence and convinces him of his friendship, without, however, actually encouraging his delusions or agreeing with every word he says. Then, when a suitable opportunity offers, he suggests that the patient may have come to an erroneous conclusion about some quite insignificant occurrence. After a few more sittings, as opportunity offers, he points out another minor occasion when the patient might have been mistaken. So he goes on until he sees his chance for tackling the main delusion and pointing out that even here he may have also been mistaken. The physician takes advantage of any attitude of doubt and completes the cure by "therapeutic conversation." The whole procedure requires an enormous amount of tact, patience, and skill. Moreover, the physician must be familiar with these mechanisms of paranoia which have been discovered by the psycho-analytic method.

CONCLUDING REMARKS.

The main object of these lectures has been to expound the principles of psycho-analysis proper, its technique, the psychological mechanisms which it has disclosed, and the bearing of these mechanisms, not only on many of the patients in the asylums of Great Britain, but also on an enormous number of people pursuing their ordinary vocations in spite of curable mental worries or spending an enormous proportion of their time and income in nursing homes. The physician who will undertake the radical cure of these poor sufferers will earn the gratitude of society as well as that of the patients, which is always unbounded; but he must be a man of courage, for he will have to face the opposition of the "herd" for many years to come. In spite of all we may say, the subject of sex will remain taboo, yet no physician of experience can deny the enormous rôle played by sexual conflicts in the genesis of the neuroses. I do think that cases sometimes occur in which the psychogenetic conflict is non-sexual, but they are so rare that I can see the psycho-analytic literature of the future augmented by reports of such cases as curiosities.

Although I attach so much importance to psycho-analysis, I hope that no words of mine will detract from the systematic investigation of cases by other methods. It would be deplorable, for instance, if attention to psychological investigation should detract from the work of the clinical laboratory and thus allow a positive Wassermann reaction, so common in dementia præcox, for example, to be overlooked.

It has often been said that the frequency of mental disease is due to the effect of civilisation, to the hurry, bustle, and struggle for existence associated with urban life, to defective sanitation, insufficient sleep, overwork, poverty, brain-fag, education, and a host of other things incident on civilisation. With all our modern conveniences, the Poor-law, hygienic surroundings, hospitals, comfortable railways with restaurant cars and sleeping accommodation, typewriters and telephones, such a view is manifestly erroneous.

That insanity is the result of civilisation is obvious to anybody who looks the facts in the face; but psycho-analysis has revealed that the essential factor is not hurry, bustle, and brain-fag, but the repression of the instincts enforced by civilisation.

It is not to be supposed that the prophylaxis of insanity lies in letting loose the reins of licentiousness and depravity. The problem is far more intricate than this, and it is not likely that it will be solved in the present century, much less in our own time. The mystery at present surrounding sex and birth problems must be removed by systematic education of the young in such matters, early marriage must be made more possible than existing circumstances will permit, and old men and parents will have to remember the days of their own youth when they enact the laws which are to govern society. Moreover, the whole populace will have to be educated in such matters before any serious change can be accomplished.

CEREBRO-SPINAL MENINGITIS.

WITH NOTES ON TWO EPIDEMICS.

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Cerebro-spinal meningitis, or spotted fever, is a disease of great importance to the practitioner, for though nowadays large epidemics are rare in England, the occurrence of the disease in small numbers is frequent in our larger towns. In East Africa the disease has assumed characters so virulent that it is the dread of the native and the bugbear of the employer of native labour. This is not surprising, for in 1913 it killed, in one tribe, numbers variously estimated at 20,000 to 40,000.

It is a curious feature of the disease that there are places in East and Central Africa where it is always endemic and seldom epidemic, as, for instance, Uganda in general and the coast town of Mombasa, whilst in the highlands of British East Africa the endemic form is not often seen, and when the disease occurs it is usually in the form of an epidemic of greater or less virulence.

In the second of the epidemics to be here described the persons involved were natives of Uganda and the borderland between British East Africa and Uganda, who were brought down to the coast to act as military porters in connexion with the campaign against German East Africa. Whilst in Mombasa three or four cases of a clearly sporadic nature occurred, following the usual custom of that town, where amongst the natives post-basic meningitis is of continual occurrence.

First Series.

The first epidemic that came to my notice was of a much milder character than the second; it occurred at almost the same place in the highlands as the second, but amongst natives whose normal habitat more normally approximates to the altitude in which they were then living. In all, I had 8 cases in this epidemic, resulting in 4 deaths and 4 complete recoveries. Besides these a small number of cases occurred amongst natives who

were not under my care, and these were treated by Dr. Nicholls.

I must make apology for lack of scientific methods. I have been, all through, unable to obtain a lumbar-puncture needle in this country, and lack of a bacteriological laboratory rendered microscopical examination of pus my only means of investigation of the organism.

As regards the second series of cases—the more important one—scientific observation was rendered even less possible, by reason of the difficulties naturally encountered in such work when it is done in connexion with the transport arrangements of an expeditionary force on active service.

CASE 1A.—Aged about 25. Physique poor. History of sudden onset of pain at the back of the neck and across the shoulders, and severe occipital and vertical headache. On the second day head retraction was marked, but not excessive, Kernig's sign positive; abdominal and epigastric reflexes absent; knee-jerks normal. The plantar reflex, as with all natives, was not obtainable, owing to the thickness of the soles of the feet. On the third day there was purulent conjunctivitis in the right eye, the pus showing a Gram-negative diplococcus with an intracellular distribution. The case showed no further features of interest, and made an uneventful recovery.

CASE 2A.—Aged 20 years. Physique fair. In general the case was almost precisely similar to the last, save that the conjunctivitis affected both eyes, the pus from which showed the diplococcus, and there was a nasal discharge of thick, yellow, creamy pus, which also contained intracellular diplococci. After four days the patient became unconscious, with very marked head retraction, and died on the eighth day. At the necropsy I found thick yellow pus in the pia-arachnoid involving the brain from base to vertex, descending into the greater fissures and all along the spinal cord.

The following is a different type of case showing more severe onset, but proceeding to complete recovery.

CASE 3A.—Aged 15. Physique poor. Onset very sudden with headache and pain at the back of the neck and across the shoulders, followed in about 12 hours by unconsciousness lasting three days, during which he was brought a seven hours' railway journey. He was fed by tube for seven days. Head retraction and Kernig's sign marked. Eventually gradual recovery commenced without any special features, and was complete in about five weeks from the onset of the disease.

The other cases of the same epidemic showed no features of special interest. The two cases that reached necropsy showed post-mortem findings similar to those in Case 2A.

One case that occurred in the same epidemic, in which, though the patient died before I saw him, there is very little doubt of the diagnosis, exemplifies very well another distinct type of the disease. The onset in a native of superb physique was very sudden with pains at the back of the neck and across the shoulders, and severe headache. Unconsciousness supervened in about an hour and a half, and death in six hours. At the post-mortem examination the only macroscopical feature was excess of cerebro-spinal fluid, which was removed from absolute clarity by the nearest possible turbidity. In none of these cases was any treatment, other than symptomatic, adopted.

I was told by my colleague, Dr. Nicholls, of the success of his prophylactic measures of burning down all the natives' huts occupied by those amongst whom his cases occurred, syringing out the nose and naso-pharynx with weak antiseptic of everyone exposed to infection, and causing them all to take a bath in a strong solution of cyllin, and immersing all bedding, clothes, &c., in a still stronger solution. I therefore decided to follow out the same plan of campaign, only instead of burning the huts I pulled them all down and left the corrugated iron sheets of which they were made lying under the powerful African sun for two days, and subsequently had them re-erected on a different site. The bathing of all the natives exposed to infection, together with their clothes, bedding, &c., in cyllin 1 in 400 and 1 in 200 respectively, was carried out, but owing to there being considerably over 500 natives to be dealt with, I omitted the nasal syringing on the theory that an antiseptic strong enough to kill the meningococcus will probably have a similar effect on the cells of the nasal mucosa, whereas one strong enough only to inhibit their growth will so injure the nasal mucosa as to render it even more unable to resist the attacks of the organism. The result of these measures, as of those of Dr. Nicholls, was absolutely successful, not a single case occurring amongst the natives in the vicinity until six months afterwards, when the second epidemic occurred amongst natives lately imported from a totally different source.

Second Series.

This epidemic, as above mentioned, occurred amongst natives employed as military porters, who had been for a month in Mombasa, and amongst whom, while in Mombasa, a few sporadic cases had occurred.

CASE 1B.—Aged about 14. Physique and general condition poor. Onset almost insidious, with mild headache, very slight stiff-neck, and slight pains in the limbs. These increased until, on the third day, the headache was very severe and the head retraction excessive. On the fifth day semiconsciousness supervened, with, at times, delirium, in which the patient was very restless, and, on one occasion, eluded his watchers and walked 400 yards before he collapsed. This condition continued for some eight days, during which wasting became excessive. Recovery commenced about the twelfth day, proceeded uneventfully, and was complete in about five weeks from the onset.

There followed five cases of no special interest, four of which died. These five cases showed a tendency for the disease to assume a more virulent type, as evidenced by the suddenness of onset, severity of general symptoms, excessive head retraction, shortened time before the onset of unconsciousness, and the rapidity of the occurrence of death. None of the cases that died had any treatment other than symptomatic. The one that recovered was treated with intramuscular injections of soamin, gr. 5, on alternate days, but only in the later stages of the disease when convalescence was well established—i.e., during the later stages of the epidemic, when I made the exhibition of soamin a routine measure.

CASE 2B.—Aged about 25. Physique and general condition exceptionally good. History of syphilis probable, but not very clear. Taken ill at 6 P.M. with severe headache, and pain in the back of the neck and back. The obtainable history is not very clear, except that he was obviously very ill quite soon after the onset. About 2 A.M. unconsciousness supervened, and continued without remission until death. When I first saw him at 9.30 the next morning he was deeply unconscious, with rapid stertorous breathing, and in a condition of absolute flaccidity, and presenting no sign of meningitis excepting the unconsciousness. The general aspect of the case was almost exactly like that of a severe cerebral hæmorrhage. The pupils were of medium size, reacting to light. No strabismus. There was absolutely no resistance to any passive movements of any kind. Fæces had been passed, the bladder was distended, necessitating the use of a catheter. Though I was naturally on the look-out for meningitis, I could not correlate this case with any known manifestations of that disease, and made a tentative diagnosis of cerebral hæmorrhage. The patient died at 11 A.M., 17 hours after the onset of symptoms. At the post-mortem examination I found thick, creamy, yellow pus

involving the whole brain and spinal cord, especially abundant at the vertex. The ventricles were filled with turbid fluid, and the ependyma slightly injected.

The 10 or 12 following cases were of the ordinary acute or fulminating type, and betrayed a gradual though distinct tendency for the later cases to be of more virulent nature, both as regards the suddenness of onset, shortness of time before unconsciousness supervened, and rapidity of death. The average history would be sudden collapse of the patient while at his work, complaint of pain in the back of the neck and across the shoulders, and headache of varying intensity. In one or two cases the headache seemed to be almost absent, pain in the head not being complained of until quite late in the disease. In the earlier cases unconsciousness usually came on in the third or fourth day, and death in five to seven days, and in the later ones unconsciousness in from six to 36 hours, and death on the second to the fifth day. Head retraction, Kernig's sign, and general rigidity were present in all these cases; the abdominal and epigastric reflexes were always absent. No cases showed any material change in the tendon reflexes.

CASE 3B.—A case of the ordinary rapid type with unconsciousness on the third day and death on the fifth day. On the third day enormous quantities—several ounces—of thick yellow pus were discharged from the nose. In this pus I demonstrated the presence of intracellular diplococci.

CASE 4B.—A case of the rapid type with death on the third day. Unconsciousness supervened only about 10 hours before death. On the second day diarrhœa commenced, at first with the passage of fæcal stools; afterwards no fæcal matter was passed, but large quantities of mucus mixed with yellow pus. Unfortunately, I was unable to examine this pus microscopically.

CASE 5B.—Aged 22 or 23. Physique and general condition good. Sudden collapse while at work at 12 o'clock midday. Within half an hour the patient was unconscious, and died at 2 P.M. The post-mortem examination showed a slight excess of cerebro-spinal fluid, containing pus cells and intracellular diplococci.

At this stage, three weeks after the outbreak of the epidemic, the general run of cases showed a tendency to diminution of virulence according to the standards above set forth, while coma lasted a shorter time, and death became less inevitable.

CASE 6B.—The patient was of good physique, but the general condition was unsatisfactory. He came as an ordinary out-patient, complaining of headache. I found stiffness of the neck and a very doubtful Kernig's sign, and gave him a prophylactic dose of soamin, gr. 5. The next day he complained of pains in the arms and legs, and there was slight head retraction, and an undoubtedly positive Kernig's sign, together with distinct general muscular rigidity of the limbs. For three weeks the neuritic pains in the limbs continued, and he complained of girdle pains involving the trunk roughly from the dorsal roots 9 to 12, and I was able to demonstrate a band of hyperæsthesia involving the skin area of the same dorsal nerve roots. I could not find any anæsthesia. Weakness of the legs increased and eventually became excessive. The knee and ankle jerks were very weak, but could always be obtained with difficulty, but there seemed no doubt that the weakness of the legs, though largely due to the general condition, was to be partly accounted for by a definite myelitis involving the anterior cornua of grey matter of the lumbar region, or neuritis of the anterior nerve roots. Wasting of the muscles of the legs was very excessive.

At no time did this case show any signs referable to cerebral meningeal involvement, except for the very slight headache and almost negligible retraction of the head. Recovery was gradual but complete, the patient complaining of pains of a rheumatic type in the limbs for a fortnight or three weeks after the cessation of all active disease.

CASE 7B.—Almost exactly similar to Case 6B, except that the first symptom was neuritic pains in the limbs. The arms in this case were more involved than the legs, and there was indefinite hyperæsthesia over the chest. In this case there was rather more head retraction than in the last case, and a distressing feature was a very severe herpes labialis involving the upper and lower lips, and spreading outwards on either side of the corners of the mouth.

CASE 8B.—A case of mild type and slow onset. On the fourth day the temperature rose to 107° F., and I found signs of a slight broncho-pneumonic condition at the left base. The hyperpyrexia continued for three days with a temperature of from 105° to 107°, and the case ended in complete recovery.

CASE 9B.—This patient, aged about 17, was of very poor physique and general condition, and had been attending as out-patient for a month with chronic headache and a temperature of from 99° to 100° every day, to account for which I found nothing on physical examination. He eventually developed a Kernig's sign and head retraction. Eventual complete recovery.

I adopted the same prophylactic measures in this epidemic as were so successful in checking the first. On two occasions the bathing of the 800 natives implicated in cyllin 1 in 400, and their clothes, bedding, &c., in cyllin 1 in 200, was carried out. The camp in which they lived was twice moved, the corrugated iron, of which the huts were made, being at the same time exposed to the sun for two days. Isolation of contacts was, of course, carried out and a strict isolation of cases enforced. The hut in which any case had occurred was broken down and the iron composing it exposed to the sun for two days and all the huts had their roofs removed every day, so that the vertical sun could get at the interior. As a last despairing measure the camp was split into two separate halves, and each half into two sections, in the hope that one section might be declared free from the disease, but no good resulted, and the disease only died out when all the natives were returned to their own homes in a part of the country where cerebro-spinal meningitis is endemic and not epidemic.

The treatment adopted was in the main symptomatic, but in the later stages of the epidemic intramuscular injection of soamin, gr. 5, on alternate days was carried out on every case, both in the case of those in the acute stage and of those convalescent from the acute stage in the earlier stages of the epidemic. As regards these injections the syringe and needle were carried in a small tin filled with cotton-wool soaked with methylated spirit. The soamin was made up in a solution of gr. 1 in ♏ 5 of filtered water, sterilised by boiling, and kept in a small glass-stoppered bottle holding 16 doses. For use the syringe was removed from the spirit-soaked wool (a small piece of which was used to cleanse the patient's buttocks), the needle inserted into the bottle and the required dose drawn up into the syringe, and injected into the buttocks of the patient. If, as was almost invariably the case, another injection had immediately to be given, the process was repeated without further sterilisation, and though I gave upwards of 300 injections in this way, in no instance did any untoward symptoms occur.

Persons attacked.—It will be noticed in the cases which I have detailed above that in patients of strong physique and good general condition the onset was rapid and sudden, the attack severe, and death the rule, whereas the milder cases invariably occurred in the poorer specimens. The two most virulent cases that came under my notice were Cases 2B and 5B, and these were both natives of exceptional physique and general condition;

whereas the mildest case and the one showing the most insidious onset was in a patient of exceptionally poor physique and in a condition of very poor health for one month before he developed the disease. Doubtless, however, I failed to diagnose many still milder cases. This is an extraordinary and, I think, inexplicable feature of my cases, and one that held good, almost without reservation, throughout the two epidemics.

Conditions of bronchial catarrh were very common amongst the natives in whom the second epidemic occurred, amounting certainly to 25 per cent. of the whole number, but I have not been able, on looking over my notes, to correlate any special tendency for those so affected to be attacked by meningitis.

Incubation period.—I obtained no evidence to enable me to make any statement as regards this. Three weeks elapsed after the porters were brought from Mombasa to the highlands before the first case occurred, but his only serves to prove that someone must have carried the virus about with him for that period without showing any symptoms.

Prodromal symptoms.—I was unable to notice any constant prodromal symptoms. The disease usually attacked perfectly healthy individuals without any warning. In one case there had been low fever and headache from an unknown cause for nearly a month before meningitis became obvious, but this had probably nothing to do with the disease.

The Onset and Acute Stages of the Disease.

These may be divided into five general types or degrees of acuteness:—(*a*) Fulminating type, (1) exhibiting the ordinary symptoms of rigidity, &c., and (2) accompanied by coma so deep as to give rise to complete flaccidity; (*b*) acute type; (*c*) the common type, less acute than (*b*); (*d*) subacute type; (*e*) those cases in which symptoms of cerebro-spinal meningitis are practically or entirely absent; and (*f*) spinal type. These must not be taken as pathological, or even clinical entities, but merely as an attempt at classification and subdivision of the disease into the forms in which it is usually seen. For the purposes of description cases complicated by infection by the meningococcus of other organs than the meninges may be placed in a separate category as under (*g*) combined infection, (1) with rhinitis, (2) with conjunctivitis, (3) ? with enteritis.

(*a*) *Fulminating type.*—1. A very common form, of which Cases 3A and 5B are examples. The onset is very sudden, and in a few minutes the patient is completely collapsed. Unconsciousness comes on within an hour or two, but is never so complete that the general muscular rigidity is lost, though the irritability usually seen in meningitis is commonly absent. Death is almost invariable. 2. A rare form of which I have only seen one example—Case 2B. Diagnosis of this form is probably impossible except by the examination of the cerebro-spinal fluid, as the clinical condition presents no resemblance to the commonly accepted picture of meningitis.

(*b*) The ordinary extremely *acute form*, in which the onset is sudden, with headache, pain in the back of the neck, and very frequently with pain across the shoulders, with or without the headache and pain in the neck. The patient is very ill within a few hours of the first symptoms, and coma supervenes in from 24 to 48 hours. The ordinary signs and symptoms of meningitis are always present, headache being always acute, head retraction often excessive, Kernig's sign strongly positive, and irritability continues throughout the coma.

(*c*) The *commonest form* is something between Type (*b*) and Type (*d*). The mode of onset is variable, ranging from practically the same thing as in Type (*b*), sometimes accompanied by rigor, to insidious headache, gradually intensifying, with pain radiating down the neck and across the shoulders. In other cases rheumatic pains in the limbs, and usually across the shoulders, are the first complaint. If the patient is examined in the earliest stages it will generally be found that there is resistance to anteflexion of the head, and if the head is forcibly rotated so that the head looks towards one or other shoulder, pain is complained of. A forcible depression, and at the same time forward movement of the shoulders, causes discomfort. Within 24 hours the nature of the case has usually become obvious by reason of the marked stiffness of the neck or even obvious head retraction, and the presence, to a greater or less degree, of spasm of the ham-strings, giving rise to Kernig's sign. This type of case usually becomes semi-unconscious, with continuance of excessive irritability and dislike to being disturbed throughout the acute stages of the disease, and in five to seven days is usually on the way to recovery. Sometimes in this type of case coma deepens, is protracted, and the patient dies from exhaustion or toxic absorption.

(*d*) *Subacute type.*—In this form onset is very insidious, usually with headache, and often with pains of a rheumatic type in the limbs, back of the neck, and across the shoulders. These may continue for several days before the persistence and increasing severity of the headache and occurrence of stiffness of the neck or head retraction give rise to suspicion of the true nature of the disease. The duration of the active stage is from seven to ten days, and complete recovery is the rule. This form is exemplified by Cases 6B and 9B.

(*e*) *Cases unaccompanied by the ordinary symptoms of meningitis.*—These are cases of a very mild type which range from Type (*d*) to those in which there are no symptoms, and the diagnosis rests on the demonstration of the meningococcus in the nasal mucus. In these cases at the extreme end of a long series of types of decreasing virulence, there is probably very slight or no infection of the meninges, the sole lesion being a meningococcal infection of the naso-pharynx. I probably encountered many such cases, but, owing to circumstances especially inauspicious for investigation, completely failed to recognise them.

(*f*) *Cases in which spinal symptoms predominate.*—These cases are obviously due to the predominating implication of the spinal meninges, whilst the cerebral meninges are comparatively little affected. Possibly there is a definite infective myelitis of the cord and neuritis of the spinal nerve roots, or in other cases these may be of toxic origin only. Cases 6B and 7B are examples of this type, different regions of the cord being affected.

(*g*) *Cases in which there is meningococcal infection other than that of the meninges.*—(1) *Rhinitis and naso-pharyngitis.*—This is probably of universal occurrence, to a greater or less degree, in every case of cerebro-spinal meningitis, and is probably the initial lesion. In certain instances, of which Cases 2A and 3B are examples, it becomes a marked feature of the case by reason of the excessive amount of pus discharged therefrom.

(2) *Conjunctivitis.*—This is probably caused merely through the accidental inoculation of the meningococcus on to the conjunctiva, or possibly it is an ascending infection from the nose *vid* the lacrymal duct, and is of no special interest. Examples are quoted in Cases 1A and 2A.

(3) *Enteritis.*—In the absence of any positive evidence on this I can say nothing. The point is of importance in connexion with prophylaxis as regards the treatment of fæces, not so much in England, where the method of disposal of sewage prevents the desiccation and pulverisation of fæces, as in places where the earth system is the rule.

General Symptoms and Signs.

We have, therefore, in cerebro-spinal meningitis a disease varying widely in type, acuteness and severity. At one end of the scale it is a disease of such exceptional severity and acuteness that it can cause death in so short a period as two hours (*vide* Case 5B), and at the other end occur cases with possibly no symptoms, and in which the existence of a definite meningeal infection is improbable, though there is certainly a meningococcal nasopharyngitis.

I have already discussed, incidental to the description of cases, and analysis of the types of the disease, the common signs and symptoms of the disease. It remains, therefore, only to touch on one or two other points of interest.

Temperature.—In the average case this rises rapidly with the onset of symptoms to anything between 100° and 103°, and thereafter is very irregular until all active disease has ceased. In Case 6B, which I saw very early, almost before the signs of meningitis had developed, the temperature had already reached 100·2°. In one case (8B) the temperature rose to 107° and remained near that height for three days, but this case was not wholly uncomplicated, there being a broncho-pneumonic condition of the lungs at the same time.

The pulse.—This shows nothing characteristic. I was quite unable to verify the popular supposition that the pulse is comparatively slow in meningitis, as in every case the pulse-rate was in keeping with the height of temperature then prevailing.

Subcuticular hæmorrhages.—These were never observed, possibly owing, in some measure, to the black skin of the patients.

Ocular palsies.—These are said to be very common in meningitis. I, however, never saw them in any case of this series.

Optic neuritis.—I was debarred by general circumstances and the lack of a suitable lamp from making a routine examination of the fundi oculorum. (Not that I believe that it would be possible under any circumstances with the average raw native.) In no case during convalescence or on recovery was there any complaint of defective sight.

Treatment.

Dr. J. O. Shircore, of the East African Medical Service, has written a very able article praising the effect of intramuscular injections of soamin in meningitis. He claims that the drug is excreted into the cerebro-spinal fluid and there has a deterrent effect upon the growth of the organism, and he gives results of the examination of the cerebro-spinal fluid of cases before and after the use of the drug, from which he claims that its use caused degeneration of the diplococci. That may be so, but in the 35 odd cases that I have used the drug I have failed to notice any benefit from its use. Nor could I observe any difference between the general course of the disease in those cases in which it was used and those in which it was not used. Ordinary general treatment on symptomatic lines was adopted in all my cases.

Lumbar puncture I could not employ, for reasons explained above, though from previous experience of its use in cases of post-basic meningitis I very much doubt its efficiency as a therapeutic measure, saving insomuch as its good effect on headache and other pressure symptoms is undoubted.

Morbid Anatomy.

In all cases I found evidence of pyogenic infection of the meninges of the brain and spinal cord, and in all such as microscopic examination of the cerebro-spinal fluid was carried out the meningococcus was demonstrated. The fluid varies from the merest possible turbidity to thick, creamy, yellow pus. In one or two cases there was a preponderance of the pus at the base of the brain, but in the great majority it ascended well on to the vertex and descended into the greater fissures of the brain.

Neither of the cases that showed a preponderance of spinal symptoms came to necropsy, so that the question of the existence of a definite infective, or only toxic, myelitis and neuritis must remain unsolved.

The existence of thick pus in Case 2B, which died 17 hours after the onset of symptoms, is a little difficult to explain on pathological lines.

Cerebro-spinal Meningitis and Post-basic Meningitis, and the Development and Cessation of Epidemics.

The difference between these two diseases is an etiological rather than a clinical one, insomuch as the first is the epidemic form of the second. They are both caused by organisms morphologically identical, though differing in the physiological character of virulence.

Several sporadic cases of meningitis occurred amongst the same group of natives as supplied the second epidemic while at Mombasa, and since they left that place several further sporadic cases have occurred amongst others of their number who remained at the coast. When brought into the cooler climate of the highlands nearly three weeks elapsed before the first case occurred, the next case was two days after, another followed the next day, and thereafter cases occurred at the rate of about two a day for three weeks. On some days as many as four new cases occurred, on others only one. After the three weeks the rate of incidence gradually declined, until during the last week before the whole group of natives were returned to Uganda, and out of my care—i.e., the sixth week of the epidemic—only two fresh cases occurred.

Parallel with the rise and fall of case incidence ran the virulence and acuteness of the attacks. This was so well marked that I have no doubt that if it were plotted out there would be a definite and nearly regular curve showing the rise and fall of virulence of the virus.

I have no definite information on the point, but had the epidemic continued after their return to their homes where the disease is endemic I should certainly have heard of it, and so the two ends of the curve would indicate the point where sporadic post-basic meningitis merges into epidemic cerebro-spinal fever.

Magadi, British East Africa.

A TAMPON FOR CONTROLLING A SEVERED INTERCOSTAL ARTERY,

WITH OTHER POSSIBILITIES.

BY JOHN FURSE McMILLAN, M.R.C.S. ENG.,
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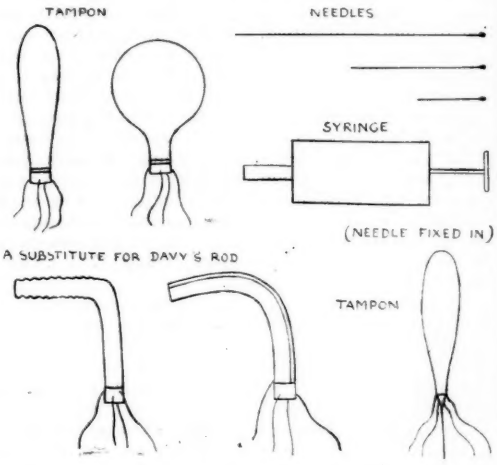
ON one occasion, at Rawal Pindi, India, I experienced the mischance when operating on a case of empyema, the Dieulafoy's aspirator being unavailable, to nick the intercostal artery, whilst using the large trocar furnished in the military operating case. The recognised treatment then was, and seemingly now is, to plug the wound with a dossil of lint saturated with perchloride of iron, or, failing this, to resect a portion of rib and then to tie the severed, or partially severed, artery. But of course in peace time, and presumably also in war time, the occasion permitting, one would be very chary of tampering with the rib of a soldier, whereby a weak spot might be constituted.

Treatment by perchloride of iron in the present case was ultimately successful. But had I been near an instrument maker I would have had made a small tampon of stiff indiarubber of a fusiform shape such as is shown in the illustration. I would



have inserted the collapsed round end into the pleural cavity, filled the tampon with water from the nozzle, and then having attached tapes to the stirrups, would have forcibly drawn the now swelled, rounded, hard, and solid indiarubber directly outwards, whereby such pressure would be made upon the nicked intercostal artery as to control it easily, whilst the affixing tapes to the chest wall by means of sticking plaster would complete the matter.

Such an invention or contrivance as the above has not hitherto been employed for the control of hæmorrhage where pressure can readily be applied to bone, and nowadays when operations are common for the treatment of bronchiectasis by ligature of branches of the pulmonary artery the possibilities of such a tampon would appear to be great. To instance: the needles shown, affixed to the nozzle and passed through a wound, should readily control the femoral artery in Hunter's canal; axillary; brachial; an artery lying on interosseous membrane; the subclavian, by passing the needle under the clavicle; branches of the facial and internal maxillary passed outwards from inside the mouth; as a substitute for Davy's external iliac compressing rod—in this case the indiarubber being of stouter substance and of the shape shown in the diagram. Again, the deep gluteal vessels might be compressed against the femur or ligaments; whilst run through the palm the deep palmar arch should be thus controlled without danger of sloughing, for with a water tampon the pressure will be evenly distributed, whilst the main point is backward pressure on bone by the forcible drawing of the tampon towards one.

Sandown, I.W.

THE PSYCHOLOGY OF TRAUMATIC AMBLYOPIA FOLLOWING THE EXPLOSION OF SHELLS.[1]

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OPHTHALMOLOGISTS have become familiar recently with cases of amaurosis and amblyopia resulting from the shock of the explosion of shells at the front. In many cases direct injury of such a nature as to cause definite organic lesion in the eye or visual paths can be eliminated. The earlier symptoms, which I have not personally observed, have been described and investigated by Dr. C. S. Myers, F.R.S.[2] The history of a typical case is briefly as follows.

A man after more or less prolonged fatigue, induced by marching and exposure in the trenches, is incapacitated by the explosion of a shell in his immediate vicinity. He may be merely knocked down or thrown into the air, and more or less seriously injured or wounded by concussion, shrapnel bullets, or shell splinters. Consciousness is lost for a variable time, but often not so far as to prevent automatic movements, so that the man may walk in a dazed condition to a dressing station. The mental equilibrium at this stage is much disturbed, and all memory of this phase is usually lost. The most striking feature of the case is that the man is instantaneously struck blind. The blindness may be associated with deafness, loss of smell, and loss of taste, but all these are less frequent than the blindness. On examination it is found that there are intense blepharospasm and lacrymation. The lids are opened with great difficulty and examination of the eyes is almost impossible. I am not aware of any record of the condition of the pupils at this stage. In the course of a week or two the blepharospasm diminishes and it becomes possible to examine the fundi. Of course, there may be local injury to the eye, but in uncomplicated cases the eyes are found to be normal. The pupils react to light, though in some cases the reactions are sluggish, and sometimes one pupil differs from the other, being larger, or more sluggish in its reactions. The fundi appear to be absolutely normal. By this time probably some restoration of sight has occurred. Light is perceived and large objects may be distinguished. As improvement occurs the patient manages to grope about, usually

[1] A paper read at the Neurological Section of the Royal Society of Medicine on March 25th, 1915.
[2] THE LANCET, Feb. 13th, 1915, p. 316.

with his hands outstretched before him, but it is noteworthy that he does not usually stumble up against objects in his path. As soon as it is possible to take the fields of vision it is found that they are markedly contracted, and that indeed to a degree which seems scarcely consistent with the avoidance of obstacles in walking.

The recovery of vision is slow, but eventually it seems always to be complete. In the later stages I have had cases in which the right eye is more affected and recovers more slowly than the left. It may recover to the extent of having only a central scotoma, though this may reduce the visual acuity to 6/60 or less. By perseverance and encouragement the patient may be induced to read a few lines of the types, and I have had cases where the manipulation of weak plus and minus lenses has led to the full 6/6 being read.

Now there are several suspicious symptoms in many such cases. The eye to recover last is often the shooting eye. Some patients show an obvious disinclination to return to duty. Some candidly admit to being in a "blue funk." In all there has been a complete mental upset, sometimes accompanied by hysterical symptoms—outbursts of weeping, &c.—in the early stages. These features render it only too easy to jump to the conclusion that there is often a large element of shamming in the case. It is because there is very grave danger of cruel injustice being done to men who have faced the music and come battered out of the ordeal that I wish to attempt an explanation of the underlying psychology.

In the first place it is necessary to segregate these cases from allied conditions due to organic lesions or to malingering. It is not always easy to eliminate organic lesions of the type which causes so-called retrobulbar neuritis. It is still less easy to eliminate malingering, but as this depends upon a knowledge of the psychology of the individual it forms a prime object of the following discussion.

Since there is no demonstrable organic lesion these cases may be regarded as examples of injuries or wounds of consciousness. This does not imply that there is no neural lesion to account for the psychological disorder, but merely that it has hitherto escaped observation. Without entering into a disputed question, which is largely metaphysical, we will adopt the view of parallelism between physiological neural processes and psychological events or changes in consciousness.

As regards cases of the type to which the group under consideration belongs, it may, I think, be admitted that the disorder of the conscious processes varies with the nature and severity of the injury and with the organisation of the individual's character. Of these the latter is by far the more complex, and in order to make my meaning clear it will be necessary as briefly as possible to sketch the evolution of character. In doing so I shall be guided chiefly by the deductions of such writers as C. Lloyd Morgan, J. Mark Baldwin, and William MacDougall, whose extraordinarily suggestive work does not seem hitherto to have been sufficiently brought to bear upon pathological problems.

Mental evolution may be divided into three stages, which may be called the sentient, the conscious, and the ideational. The sentient stage is exemplified in those organisms which show simple reflex response to stimulation. In the lowest stage of all, such as the amœba, the three parts of the reflex arc, the afferent, central, and efferent, are not anatomically differentiated. Organic evolution is accompanied by anatomical complexity and correlation of reflex arcs. The conscious stage is exemplified by those animals, such as birds and lower mammals, in which complex and compound reflexes have become organised into instincts; mere sentience—as we may call it, for we can have no knowledge of what this lowest grade of consciousness really is—gives place to consciousness which is limited to the perceptual plane. The mind of such an animal is conscious only of the percepts derived from concrete objects. It reacts to these primarily in an instinctive manner in accordance with inherited instincts, the motor responses varying according to the species. In addition, however, it has acquired the ability to modify these motor responses in the light of experience. In other words, it is capable of controlling and modifying its instinctive reactions by intelligence. In the highest stage, which is reached so far as we know only by man, consciousness is raised to the conceptual plane. The animal has acquired the ability to think in terms of abstract ideas and to form rational judgments.

Animal life possesses one all-pervading feature, the capacity for and manifestation of movement, and from one end to the other of the scale the movements are teleological or purposive. It is for the metaphysicians to explain—if they can—why a merely sentient organism manifests purposive movements when it is inconceivable that it can in any sense have knowledge of the end which will be ultimately attained. Indeed, it would be a bold assumption that such is really the case if it were not unexceptionably proved that at a higher level many lower animals perform the most complicated instinctive actions for an end—often the preservation of the species—which it is quite impossible that they can foresee. Movement entails wear and tear of protoplasm, no matter how lowly it be, so that the fundamental teleological factor is the search for food, and biological necessity demands the preservation of the species. Hence the behaviour of the lowest organisms is directed to two ends, nutrition and reproduction.

The simple reflex is a purposive response to stimulation. The stimulus sets up an afferent impulse which acts upon a central mechanism. The motor response is determined in the centre by the nature of the afferent impulse, and in its simplest form is a positive or negative taxis.

The simple instinct, compounded of complex reflexes, shows a similar tripartite nature, afferent, central, and efferent. The afferent impulses so modify the central mechanism as to give rise to an affective state in consciousness. This state is an emotion. It in turn gives rise to a definite and specific conation or striving to a particular end. The conation manifests itself in motor activities all designed to attain that end. In so far as the end is attained the emotion is satisfied and a pleasurable feeling is experienced; in so far as the end is thwarted, dis-pleasure is experienced, and this usually reinforces the conation until eventually the end is attained.

MacDougall enumerates the following primary instincts and emotions of man: the instinct of flight and the emotion of fear, the instinct of repulsion and the emotion of disgust, the instinct of curiosity and the emotion of wonder, the instinct of pugnacity and the emotion of anger, the instinct of self-abasement (or subjection) and of self-assertion (or self-display) and the emotions of subjection and elation (or negative and positive self-feeling), the parental instinct and the tender

emotion, the instinct of reproduction, the gregarious instinct, the instinct of acquisition, and the instinct of construction. To these are added certain innate tendencies—sympathy, suggestion, imitation, and so on.

In addition to the afferent impulses received from external stimuli, others are received from internal organs. The sum total of the normal impulses determines the obscure background of consciousness (cœnæsthesia) on which the general tone of mental life depends. The *disposition* of an individual depends upon the sum of all the innate instincts with their specific conative impulses. The *temperament* depends upon the influences exerted on the nervous system and through it on mental process by the functioning of the bodily organs, and on the general functional peculiarities of the nervous tissues.

In lower animals the emotions are probably generally experienced in unmixed forms. In man they tend to become combined in organised systems each centred in some object. These organised systems are the sentiments (A. F. Shand), of which love, hate, and respect are the types. Admiration, awe, gratitude, scorn, contempt, envy are complex emotions which do not necessarily imply the existence of sentiments. Reproach, jealousy, resentment, revenge, shame, remorse, sorrow, pity imply the existence of sentiments directed towards some object. "It is only through the systematic organisation of the emotional dispositions in sentiments that the volitional control of the immediate promptings of the emotions is rendered possible. Again, our judgments of value and of merit are rooted in our sentiments; and our moral principles have the same source, for they are formed by our judgments of moral value" (MacDougall).

Further, moral conduct is essentially social conduct. Psychology has been revolutionised in recent years by the writings of William James, G. F. Stout, and others, who have thrown into relief the previously well-nigh disregarded fact that the development of the individual mind cannot be explained by isolating it and examining its workings by introspection alone. Each mind is endowed with innate properties; these show inherited variations which cause one mind to differ from another. But in addition to this each mind is subject to acquired modifications due to its environment, and the most important element in its environment is the group of other minds with which it is brought in contact. Advance in moral conduct and the development of *character* are brought about by the growth of self-consciousness and of the self-regarding sentiment. The idea of self and the self-regarding sentiment are essentially social products, so that the complex conception of self ultimately attained is always of self in relation to others. MacDougall distinguishes four successive stages in the development of conduct: (1) the instinctive stage modified only by the experience of pain and pleasure; (2) the stage of control by rewards and punishments; (3) the stage of control by anticipation of social praise and blame; and (4) the stage of regulation according to an ideal of conduct.

Such, in the sketchiest outline, is the mental evolution which culminates in the individual character. The analogies which have been arduously elicited from comparative psychology are very illuminating, but they must not be pressed too far. It is true that in physical development the individual rapidly recapitulates the chief stages of the history of the development of the species, but this is true only in a broad sense, and can only be proved of any detail by direct observation. Similarly in the mental evolution of the child, so ably studied by Preyer, J. M. Baldwin, and many others, an instinctive phase resembling that of lower animals, an animistic stage resembling that of primitive races, and so on, may be dimly indicated, but it is doubtful if a baby ever exhibits a complete yet unadulterated instinctive response.

Underlying the psychological development outlined above there is a physical neural development, in which the tremendous stride which the human species has taken beyond the anthropoid ape is most obviously shown in the enormous development of the pallium. The development of the cerebral cortex, however, has not taken place without the most extensive rearrangement of lower structures. Cerebral control does not mean simply control of unaltered units. It means also modifications in the units themselves—modifications in reflex and instinctive responses both in kind and degree.

To sum up this long but necessary preamble, in the cases under consideration we are dealing with individuals of various moral and psychological character, disposition and temperament. Their temperaments are determined chiefly by the condition of their visceral organs and circulation. Their dispositions are determined by the sum total of the conative impulses of certain primitive instincts which vary within relatively narrow limits in their innate characteristics and relative strengths, and are subject to acquired modifications in accordance with the environment of the individual. Their characters are determined by their temperaments and modified innate dispositions, of which the latter are subject to a volitional control which varies according to the social environment and educative experience.

In the evolution from stage to stage through the phases reflex, instinctive, and ideational the earlier stage is not lost, but is made to subserve the new conditions. Thus in the most highly developed species, man, all persist. The earliest or reflex stage persists in the lowest anatomical and physiological level. It can hardly be doubted that the highest is a function of the most recently and highly differentiated part of the cerebral cortex. Whilst, however, we may say that the reflex mechanism is specially associated with the lower—segmental—region of the central nervous system, stretching from the mid-brain to the end of the spinal cord, owing to the elaborate rearrangement of structure and function which has occurred, it is at present impossible to localise with any degree of precision the neural bases of the higher instinctive and ideational processes. Their complexity is largely, though by no means wholly, a matter of correlation and association; and the anatomical basis of an isolated physiological function is to be sought rather in a unified system of widely spread neuronic paths—afferent, associational, and efferent—than in any so-called "centre."

It is further to be noted that the subservience of the more primitive phases of evolution is associated with what may be described as subservience in consciousness. Afferent sensational impulses, modified by afferent visceral impulses and by other more subtle impulses due to previous experience, lose to a large extent their specific characters and become merged in a complex cognitive impulse. Even from this the mind springs forward as it were to the emotional state which is thus aroused

and becomes concentrated on the efferent conation. Consciousness is focused on the appointed end; all else is relegated to a subconscious background.

The effects of an intense emotional shock on this highly complex system may, *a priori*, be expected to be manifold and complex. Let us consider the effects of a blinding flash of light. In the first place it will produce certain definite reflex results—sudden closure of the eyes, retraction of the head, perhaps recoil of the whole body, and so on. Actual damage may be done to the delicate retinal structures, resulting in temporary or permanent defect of vision. But apart from these effects, the strong light stimulus will have other far-reaching results. Sudden and unexpected visual sensations play an important part in the sensational complex which gives rise to the emotion of fear. They are less potent, as a rule, in this respect than auditory stimuli. Nevertheless, they arouse an emotional state which varies from mere surprise to actual fear. Doubtless the natural instinct of flight is suppressed in the adult by the intervention of the self-regarding sentiment and manifests itself only in a sudden start. If the blinding flash is accompanied by a loud noise the emotion of fear is still more powerfully aroused. If also accompanied by an offensive smell the emotion of disgust is aroused and gives rise to repulsion.

The response of an individual to such a shock depends, therefore, essentially upon the degree of development of his self-regarding sentiment. As we have seen, this depends upon his disposition—i.e., the sum of all his innate instincts, his temperament, and the modifications and control which these have acquired as the result of his environment and experience. We cannot, however, isolate the sensational complex which causes the shock from the concurrent circumstances. The response will vary also according to these conditions—e.g., according to whether the individual is alone or one of a crowd, and so on.

In the case of a soldier under shell fire the conditions are unique. The man is usually bodily fatigued, whereby his control is impaired. He has "the fear of death before his eyes" and is in a state of acute excitement, whereby his normal judgment is impaired. These conditions conspire to give his innate instincts ungoverned play. On the other hand, positive self-feeling, aided by suggestion and imitation and the sentiments of patriotism, the honour of the regiment, his own honour, and so on, enforce his volitional control. At last, however, the shock comes which strikes him unconscious. It is not to be supposed that he is thereby anæsthetised to these emotional storms. It is rather to be conjectured that he is rendered "subconscious," and hence the more a victim of his lower instincts. This view is supported by the emotional behaviour of the men in the early stages, and by the fact that many of their actions can be revived by hypnosis.

The "unconsciousness" in these cases is to be explained physiologically by an abrogation of the functions of the highest level cortical cells. Recovery shows that the cells are not irretrievably damaged, and it is most likely that the block occurs on the afferent paths at the synapses of these cortical cells. Consciousness returns but there is blindness. So far as objective evidence goes the lower visual paths are intact and function normally. The optic nerves carry their impulses, at any rate as far as the pupil reactions are concerned. The condition resembles uræmic amaurosis. I have seen it also in children after post-basic meningitis. The block is somewhere above the so-called primary optic centres—external geniculate bodies, optic thalami, and superior colliculi. It, too, is probably in the synapses of the cortical cells, in this case the synapses of the fibres of the optic radiations. Sometimes such a block occurs physiologically and it is probably to be explained in the same manner. Everyone knows what may happen when reading an uninteresting book whilst the attention is diverted by some other train of thought. A paragraph is read and one suddenly becomes conscious of the fact that nothing has been conveyed to the mind. Yet on reading it again one may recall certain sentences as undoubtedly having been read though they failed to reach the fully conscious mind. Perhaps the suppression of the image of a squinting eye is to be explained in the same manner.

It is definitely stated by Dr. Myers that smell is partially lost in spite of the fact that there is no unpleasant odour noticeable when a shell explodes. This is probably to be explained by suggestion. I do not, however, think that it is necessary for the explanation of loss of vision and hearing that the visual and auditory paths respectively should have been definitely stimulated. These paths—situated in such intimate relation with the higher levels—play such a prepotent part in cerebral processes—equilibration, spatial percepts, and so on—that at any rate a partial visual block might be expected at times to persist beyond the recovery of consciousness. The duration of such persistence, however, is likely to be much greater if the primary shock has a powerful visual element, whether it be a blinding light or an awe-inspiring spectacle.

Though in the cases under special consideration there can be little doubt that the early loss of vision has a definite neural basis, it must, I think, be conceded that in the later stages the neural basis is of that undefined nature which we associate with so-called "functional" conditions. In other words, it is neurotic, but it is not "shamming," difficult though the line be to draw between them. I have had one case in which the vision of the left eye improved to 6/6, while that of the right improved to 6/36. By manipulating various glasses I succeeded in making the patient read 6/6 with + 0·5 D. sph. and − 0·5 D. sph. before the right eye and + 6 D. sph. before the left. He had the chance of taking a commission and was eager to do so. I feel convinced in my own mind, from his character and demeanour, that he was quite honest.

It has already been mentioned that in the earliest stage of recovered consciousness volitional control is almost or quite abrogated. The man is merely an emotional animal, or rather worse, for he is deprived of that intelligent control which plays such an important part in animal life. His behaviour is hysterical, but it is a passive hysteria, unlike the commoner active hysteria in which the partially emancipated emotions are often guided by some preponderant ideational impulse. There can be little doubt that in this stage the most potent of the primæval instincts—fear—holds almost undisputed sway, irrespective of the normal character of the individual, for the loss of volitional control implies the loss of the coördination of all those complex factors which make up the character of the man. As recovery progresses the outward manifestations of fear are more and more masked or suppressed, for the self-regarding sentiment gradually again becomes restored.

Its restoration, however, will be in accordance with the innate dispositions of the individual. If he is naturally mean-spirited it is unlikely that his self-regarding sentiment has developed beyond the stage of merely masking an ever-present pusillanimity; his motive power is limited to a sense of shame. If he is naturally of a fine character his fears will be suppressed with ever-increasing vigour as he becomes more and more conscious of the ideals of conduct which have shaped his character. In this stage of struggling to regain control the patient is at a disadvantage, and the acute observer will have the best opportunities for studying his springs of conduct. There are rare characters in which the emotion of physical fear appears to be non-existent, but in the vast majority of cases it is present, and however cleverly it is masked or however nobly it is suppressed it has to be reckoned with. If merely masked it will prove a very powerful incentive to the avoidance of renewed exposure to danger, and a temporary disability may give place to deliberate fraud. If suppressed it may yet require all the help which can be derived from the highest sentiments, reinforced by suggestion and by the active sympathy of discreet friends and advisers. These may all fail, but if so it is a case for pity and encouragement rather than contempt and obloquy.

It appears to me that these are the principles which should guide the medical adviser in his investigation and treatment of the case. We are accustomed to take the past histories and present conditions of our cases. In these "wounds of consciousness" the past history involves a difficult investigation of the innate dispositions and propensities of the individual, the environment to which he has been subjected in his home life, his school life and his further career, and last, but not least, in the special cases under consideration—the motives which led him to join the colours. For every man who enlists is not necessarily a ready-made hero. Many have enlisted merely because they are ashamed of not following the example of their friends. All honour to them; but they are not equipped with the sterling qualities of the man who is impelled by a noble ideal. The latter may recover completely from the shock, reinforced, indeed, by the sense of a moral victory won. The former may remain partial wrecks, too fearful of a renewal of their terrifying experience to be of any use in the fighting line. By injudicious forcing they may be wrecked entirely. On the other hand, by carefully studying their habits and tastes they may be switched off into other paths which will lead to the restoration of self-esteem and make them again useful members of society.

The investigation of the present condition is simply psycho-analysis in the true sense of that much-abused term. Amongst the many instincts and sentiments which have been enumerated and which will require to be studied and weighed, the sexual instinct will hold its proper, and no more than its proper, relationship. It cannot be ignored, for it is at the foundation of the parental instinct, the tender emotion, and the sentiment of love. As such it is potent for good or evil, and it is the physician's part to utilise it for good as far as may be, and above all not to frustrate that end by his own indiscreet probings.

As Dr. Myers has shown, hypnosis may be valuable in reconstructing the history. I am doubtful as to its use as a method of treatment, but others are better qualified to judge on that point. As regards therapeutic measures, it should be remembered that fright causes great exhaustion of the suprarenal glands.

I have restricted my remarks to a special type of so-called traumatic neurosis, but it is obvious that the principles which have been discussed are capable of wide-reaching application.

HETEROLOGOUS TRANSPLANTATION: MOUSE TUMOURS IN RATS.

BY W. E. BULLOCK, M.D. EDIN.,
ASSISTANT, IMPERIAL CANCER RESEARCH FUND.

WHEN a tumour arising in one species of animal is inoculated into an animal of another species the tumour fails to grow progressively. This specificity has in some cases been found to be so marked that a tumour occurring in one variety of mice will not grow in another variety. Throughout the literature of the experimental investigation of cancer there may be found repeated references to these facts, which must be taken into consideration in any theory of cancer. J. B. Murphy[1] has shown, however, that rat and mouse tumours may be grown by inoculating developing chick embryos. The inoculation is made on the fifth to the eighth day of incubation. The transplanted tumour fragment grows vigorously up to about the seventeenth day and then begins to be absorbed. Thus we have here a remarkable and conspicuous exception to the rule of specificity already noted.

It has been shown by Rywosch[2] that chick embryos have practically no bactericidal or bacteriolytic powers; and, *a priori*, one would suppose that the explanation of the success of the transplantation of rat and mouse tumours to chick embryos is to be found along similar lines—namely, the absence in the developing chick of the mechanism by which resistance to tumours of a foreign species is produced. The phenomenon has also been explained by assuming that the embryo contains an excess of "growth substances" which are not yet differentiated and which can thus provide sufficient of these necessary materials for the proliferation of the tumour cells.[3]

It seemed reasonable to anticipate that the mammalian embryo will provide as suitable a host for a tumour of another mammalian species as the more distantly related chick embryo, and it is with this possibility that the present paper deals. A brief outline of the work has already been given in July, 1914, in the Twelfth Annual Report of the Imperial Cancer Research Fund.

The technique by which developing chicks are inoculated is very simple, but the difficulties of inoculating mammalian embryos through the uterine wall without bringing gestation to an end are very great, though it has been done.[4] It was therefore decided first of all to inoculate new-born rats with mouse tumours. It is to be noted that when a freshly hatched chick is inoculated with a rat tumour the tumour fails to grow, and it might be thought, by analogy, that a mouse tumour would not grow in new-born rats. But this was found not to be so.

The rat, under 24 hours old, is inoculated by the needle method, preferably in the subcutaneous tissue of the back. Occasionally the needle strikes a vein and a fair amount of blood is lost, but only one animal in several hundred was killed by the actual inoculation. The transplantation must be

carried out quickly and the animals must be kept warm. The chief difficulty in this work lies in rearing the young rats. The mother is very liable to kill her young after they have been interfered with, but these accidents may be very much reduced by handling the mother rat frequently during the period of gestation.

The tumours inoculated were a polymorphous sarcoma (37), a carcinoma (63) which in mice grows progressively until it kills the host, and a carcinoma (206) which grows for about 16 days and then disappears, leaving the mice in an immune condition. With each of these tumours it was found that rapid growth takes place in rats inoculated during the first day of life for from 10 to 17 days, the tumour then disappearing, as illustrated in the charts reproduced. (Charts A, B, C.) From a dose of 0·01 c.c. it is easy to obtain in 10 days a tumour weighing over 1 gramme. (Fig. 1.) The mass consists of healthy tumour cells, showing in microscopical sections their characteristic shape and arrangement, with numerous mitotic figures. After the tenth to seventeenth day increasing numbers of fibroblasts grow in thick strands from the capsule into the tumour, the tumour cells becoming necrotic. Eventually in a further period varying from one to two weeks the whole tumour is absorbed.

With regard to the sarcoma it was found to differ om the carcinomata in that it grows very well also in half-grown and adult rats. Russell[5] has shown that the cells of a mouse carcinoma survive and multiply in the normal adult rat for nine days; but the extent of this growth is insignificant compared with what has been obtained from minute grafts of the polymorphous sarcoma (37). Chart C indicates the size of the tumours obtained with doses of 0·02 c.c. of this sarcoma.

The attempt has also been made to cultivate this sarcoma in series both in new-born and in half-grown rats. In the former case the attempt was partly successful; the tumour was maintained 49 days for five generations in rats, and was then lost through the mother eating the young animals. The growths of the third and fourth generations were, however, smaller than the first and second. This want of complete success was certainly due in part, if not altogether, to the difficulty of obtaining a regular supply of animals of suitable age, and to the frequency with which the mother rats killed their young.

When a tumour which has been kept growing in a succession of rats for as long as 46 days is again inoculated into mice it grows as vigorously as the tumours which have never been grown in rats. In other words, it is not modified by change of "soil"; the tumour cell is killed outright more readily than it is changed in character. It does not seem possible to cause the tumour to adapt itself to its new species of host so completely as to lose its capacity to grow in the species in which it arose. This practically amounts to saying that a mouse tumour cannot be converted into a rat tumour any more than a mouse can be converted into a rat. In the experiments in which the attempt was made to grow sarcoma (37) in half-grown rats, the tumour failed at the fourth inoculation, the growths becoming progressively smaller. Altogether the tumour was kept growing for 22 days in three generations.

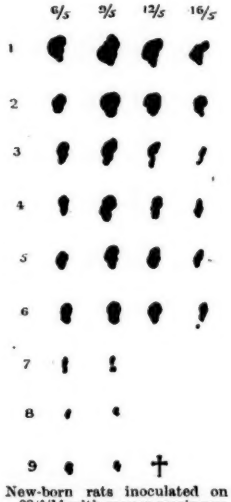
FIG. 1.

Section through the thorax of a young rat 17 days old, bearing a mouse sarcoma. The tumour (black) is penetrating between the spine and the muscles. Small areas of necrosis and bands of fibroblasts are found in the tumour; in the healthy parts of tumour mitoses are numerous.

CHART A.

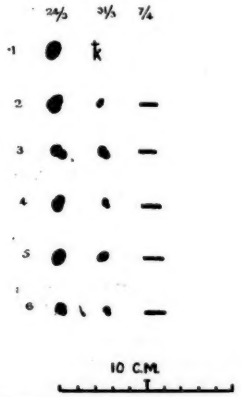
New-born rats inoculated on 30/3/14 with mouse carcinoma (63); dose 1·01 c.c. Scale as in Chart C.

CHART B.



New-born rats inoculated on 29/4/14 with mouse carcinoma (206); dose 0·01. Scale as in Chart C.

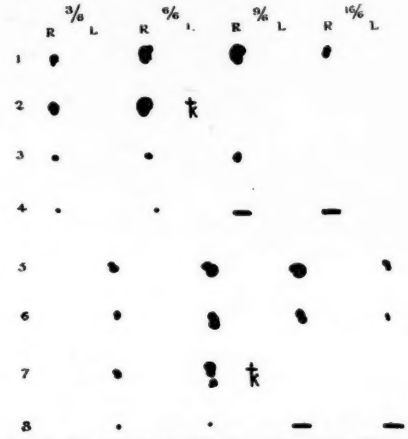
CHART C.



Half-grown rats, average weight 60 grammes, inoculated 17/3/14 with mouse sarcoma (37); dose 0·02 c.c.

One of the most interesting of Murphy's discoveries in his work with chick embryos is that the inoculation of a fragment of adult fowl spleen or bone marrow prevents the growth of a rat tumour inoculated simultaneously.[6] The addition of spleen or, to a less extent, of bone marrow enables the chick to resist the growth of the tumour cells. These experiments have been repeated with young rats, using spleen taken from a healthy adult rat. Half a litter of eight new-born rats were inoculated in the right axilla with 0·01 c.c. of an emulsion of mouse carcinoma (63); the remainder were inoculated in the left axilla with the same dose of the same tumour and in the right axilla with 0·01 c.c. of rat spleen. The growths obtained are represented in Chart D, which shows that the

CHART D.



New-born rats inoculated with mouse carcinoma (63) and with spleen obtained from an adult rat; doses 0·01 c.c. (*a*) Animals 1 to 4 received tumour in right axilla. (*b*) Animals 5 to 8 received tumour in left axilla and 0·01 c.c. of spleen in right axilla. It will be noted that no difference is observable in the amount of growth in (*a*) and (*b*). Scale as in Chart C.

spleen has had no effect on the growth of the tumour. The same experiment was carried out with sarcoma (37) and with carcinoma (206), with similar results. It is probable, therefore, that the mechanism of the production of resistance in chicks to a tumour of a foreign species is different from that in young rats. The change from the new-born to the adult condition must take place fairly rapidly, as young rats a few days old already inhibit to a marked degree the growth of most inoculated mouse tumours.

The temporary growth and ultimate disappearance of mouse tumours in new-born rats do not differ essentially from the results of similar inoculations into adult rats. In them also temporary growth, often only recognisable on microscopic examination, precedes the rapidly ensuing arrest of growth and absorption of the foreign tumour cells. Bashford and Russell[8] have shown that this disappearance follows on the development of an active immunity. If baby rats in which tumours of considerable size have developed and been absorbed be re-inoculated with fresh mouse tumour, it is seen that they are immune in the same way, and the sequence in the new-born rat only differs from that in the adult in the relative proportions of the two stages of growth and absorption. There is no valid reason to assume a different cause for the ultimate disappearance in the two cases, and the actively immune condition which has been demonstrated in both suffices to account for it completely. The disproportionate amount of growth obtainable in new-born rats is in all probability due to a failure, or rather delay, in the process of active immunisation. It must not be forgotten, however, that young animals are in general more suitable for tissue transplantation than old. Propagation in series is in consequence possible in very young animals by taking advantage of the rapid growth that occurs in the period which precedes the development of inimical substances. The success which has attended the attempts of several investigators to cultivate mammalian tumours and normal tissues *in vitro* in the plasma of alien species also points in the same direction, as in these circumstances the cellular elements responsible for the development of immunity are absent.

The results of these experiments are mainly of importance because of the analogy they present to the much more obscure process of immunity production by mice and rats to transplantable tumours arising in individuals of their respective species. This analogy is not very close, but it is instructive to note that Russell[7] has shown that those propagable tumours which grow progressively do not produce resistance to a subsequent inoculation. In alien species, however, even the strains which grow without inducing resistance in their own species exhibit only temporary growth and induce active immunity. The experiments will be continued, and the discussion of their bearing on this and other aspects of the cancer problem is reserved for a later date.

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CORONERS' SOCIETY OF ENGLAND AND WALES.—Dr. F. J. Waldo, H.M. coroner for the City of London, was elected President of the Coroners' Society of England and Wales at the annual meeting in London of the society on March 23rd. In returning thanks for the honour done him, Dr. Waldo reminded members that the founder and first president in 1846 was Mr. Serjeant Payne, a leader and reformer among coroners. He was president for 26 years, till his death in 1872. The first secretary was Mr. Langham. Both these gentlemen were predecessors of Dr. Waldo as coroners for London before the administrative County of London came into being. Succeeding presidents were Sir John Humphreys, coroner for Middlesex, and his successor, Dr. Danford Thomas, who had done so much for the improvement of coroners' courts, mortuaries, and post-mortem rooms, still so badly wanted in the country. Another strong coroner, he said, was Thomas Wakley, Founder of THE LANCET, and coroner for Middlesex, who successfully fought the justices at quarter sessions in their refusal to pay the rightful fees of coroners for what they (the justices) alleged were unnecessary inquests. Mr. Wakley brought in the Coroners Act of 1860, whereby county coroners were paid by salary in place of fees. Dr. Waldo said that the object of the Coroners' Society was to foster coöperation between coroners, to aid them in the more effective discharge of their duties, and to maintain their rights in the public interest. He promised to do his utmost to uphold the dignity of the coroner's court and the status, privileges, and rights of the coroner.

FURTHER OBSERVATIONS ON

SPERM OIL TUBERCLE BACILLI: THEIR BIOLOGICAL SIGNIFICANCE.

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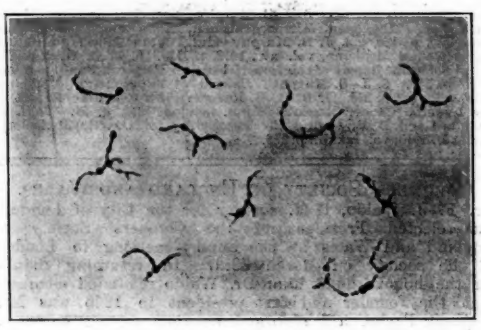
JOINT PATHOLOGIST TO THE SALFORD ROYAL, MANCHESTER CHILDREN'S, AND MANCHESTER NORTHERN HOSPITALS.

CERTAIN changes in the tubercle bacillus were described by me last year.[1] I here wish to go over some points previously mentioned and to bring forward some new matter.

The percentages employed in the article mentioned and in the present one are empirical; other percentages may do as well or better. More recently the crude sperm oil has been used. The organism on the crude oil seems to grow better and more quickly on it than on the refined oil. There does not appear at the present time to be any essential difference between the two as regards either the loss of power of the organism to stain with carbol-fuchsin or the formation of granules, except that by the improved growth of the organism these two conditions take place more readily. If, however, the original culture of tubercle bacilli, to give them their common term, growing on the ordinary solid media is at all old, or growth is sluggish when subcultured, they will probably not grow at all, or only very slightly, when placed on the oil media. For the oil media the bacilli must be known to be actively growing. With actively growing bacilli there is often a definite moist growth in about 12 days' time, but the bacilli themselves are apparently no different from those obtained from the usual sources. It takes a further period of from three to four weeks before the changes described begin to become visible.[2]

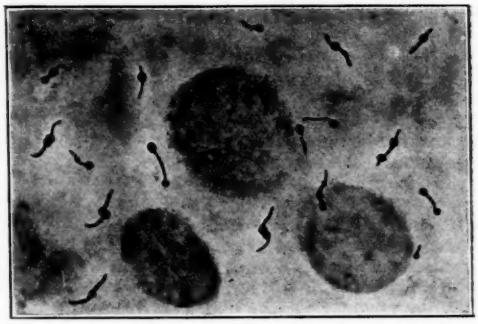
FIG. 1.



A three-months-old culture, stained with carbol-fuchsin and washed. Not decolourised. 1/12 in. lens, No. 5 ocular. × 1500. Figs. 1 and 2 drawn by J. M. Manby.

The term "beading" that was used in my former communication is not an accurate description of the organism in all cases, especially in its earlier stages and with the lower percentages of oil (2·5), for the staining parts and the non-staining parts of the organism are then often in the form of definite long segments. Later, when with the richer oil mixtures the granules begin to develop and the segments to become broken up, the term "beading"[3] is perhaps better. It is not my purpose here to go into the earlier stages of the organism, the lower percentages of the crude oil have not yet been tried, but to bring forward the late results of growth on 5 per cent. mixtures of the crude oil[4] and some of the results of animal inoculation. The organism grows on the surface of 5 per cent. crude oil and 5 per cent. glycerine as a thick uniform greasy pellicle. Microscopically it alters considerably in shape and form; it begins to *branch* (Fig. 1). Branching is also seen in the refined oil (5 per cent.),

FIG. 2.



Oil bacilli after passage through guinea-pig. From a two-months-old growth on 5 per cent. refined oil and 6 per cent. glycerine. Stain, Zeihl-Neelsen. The non-staining portions of the rods are not shown in the figure. × 1500.

but not to so great an extent. The stage of growth here represented shows the branching forms here and there in a field, the remainder of the field being occupied by rod segments. The rod segments also are more filamentous and irregular, the latter from the breaking-up of their substance by the formation of granules and in some of them by the presence of little offshoots, the beginnings or the stumps of their ramifications. At the same time they stain with greater difficulty. The staining portions of the segments do not as a rule stain with their usual vividness. The slide requires to be well heated for eight or more minutes. Branching appears in most cases to occur where there is a large "granule" present. In others small lateral offshoots seem to arise from the segments without any granule being visible, possibly false branching. Granules form in the segments as they grow, and they in their turn give off other segments. Further evidence that these "granules" are essentially bodies whose function is to germinate can, I think, be seen in animal inoculation. Fig. 2 represents oil bacilli after passage through a guinea-pig. The culture was a two-months-old growth on 5 per cent. refined oil and 6 per cent. glycerine. The growth, not emulsifying with watery fluids, was ground up with olive oil in the proportion of two loopfuls of growth to a cubic centimetre of olive oil and then injected intraperitoneally. The animal died 22 days later. The necropsy showed the liver, spleen, omenta, and glands nearly solid with tubercles. A portion of the tuberculous material was then placed in a mortar, and films were made of the expressed juice. Microscopically, there are a large number of "bacilli" present, some 20–30 in a field, nearly all of which are as those depicted,

[1] Cultivation of the Tubercle Bacillus: Change in Form by Growth on Sperm Oil and Glycerine-Egg Medium, THE LANCET, Sept. 19th, 1914, p. 739.

[2] These changes are, of course, not peculiar to the oil media. One often sees similar "abnormal" forms in old cultures on other media. For instance, I have a culture of human bacilli on Dorset's medium. It had grown very well, but had been allowed to become dry. When examined at a growth of five months the rods had grown for the most part longer; they showed all stages from not taking the stain at all to well-stained segments, and there were an enormous number of granules present, especially noticed after being decolourised (acid-alcohol). A slide fixed with a saturated solution of corrosive sublimate is not different from one fixed by passing through flame.

[3] At the best the term, in its reference, is not a good one.

[4] 5 per cent. is not the limit. A strain of bovine is growing well on 8 per cent. crude oil and 5 per cent. glycerine.

the remainder being of the ordinary rod form. It will be noted that the "granule" or "spore-body" is generally larger than the culture "granule"; it is also sharply defined and intensely stained, and has attached to it the bacillary portion of the organism. It is also to be noted (Fig. 2) that there are forms present in which two "spore-bodies" are fused together, not in juxtaposition, with their bacillary portions issuing out at opposite poles. They are not so commonly met with as the single form. With the above characteristics it is difficult to regard these bodies in any way as degenerative. The bacillary, or rod portion, of the organism varies in length and in staining power. The long forms[5] may have more than one spore-body in their length. In their manner of staining they are to be found in all stages, from not staining at all with carbol-fuchsin to being firmly acid-alcohol-fast.

Besides the above, one meets forms identical with those of the original culture apparently unchanged some two to three weeks after a peritoneal injection. In general, from one's present experience, it appears (see above) that the longer the animal lives the more the above forms tend to assume or become the ordinary rod form; they have been obtained in pure culture from the animal tissues.

Members of the streptothrix group are known to acquire acid-fast characters with age.

I wish to express my sincerest thanks to Mr. A. R. Smith, M.Sc. Lond., chemical expert to Messrs. Joseph Watson and Sons, soap manufacturers, Leeds, for the suggestion of the use of a liquid wax. Sperm oil, being a liquid wax, was accordingly chosen. In the earlier part of this work solid waxes were added to agar—e.g., beeswax, gondang, pisang, carnauba, Chinese wax, some with glycerine and some without. As might be expected, the waxes did not mix[6] with the agar. In spite of this growth occurred slightly on bees' and Chinese wax, an insect wax. I also desire to acknowledge my indebtedness to Professor A. E. Boycott, for giving me permission, and all facilities, for performing the animal experiments of this work in his laboratory, as well as to Mr. A. G. R. Foulerton, of University College, London, and Dr. J. C. G. Ledingham, of the Lister Institute, for kindly giving me cultures of streptothrices and tubercle bacilli.

The Joint Hospitals Pathological Department, Manchester.

PNEUMOCOCCAL INFECTIONS TREATED WITH AUTOGENOUS VACCINES.

BY NATHAN RAW, M.D. DURH., M.R.C.P. LOND.,
LIEUTENANT-COLONEL, R.A.M.C. (T.); SENIOR PHYSICIAN, LIVERPOOL MERCHANTS' WAR HOSPITAL.

THE following is a brief note of three cases of very virulent pneumococcal blood stream infection, in which, in my opinion, the patients would certainly have died but for the employment of autogenous vaccines.

The great mortality from pneumonia and the disappointing results in a great many cases from ordinary medicinal treatment compel us, as a profession, to employ every means in our power to minimise this heavy fatality, and I am convinced that in a great many cases (I candidly admit, not in all) we have in vaccine a valuable remedy which will, if given in the early stages of the infection, turn the scale in favour of recovery.

During the last five years I have treated in hospital and elsewhere 310 cases of pneumonia with vaccine with 42 deaths, or a mortality of about 13 per cent. In many of these cases vaccine was administered on the second or third day of the disease, and was given every four hours or at longer intervals, according to the severity of the case, and although the results have not always come up to our hopes and expectations, yet I have never once observed any unfavourable symptom follow the use of vaccine in whatever dose it has been administered.

The much debated question as to whether or not a vaccine should be given in the course of an acute infective disease must, in my opinion, be answered in the affirmative, and during a recent visit to France I was much interested to find that acute cases of typhoid fever with high temperature were being treated with antityphoid vaccine with excellent results, and I feel sure that in the near future this form of treatment will become more generally used by physicians.

A vaccine to be potent ought to be autogenous—that is, it should be prepared from the sputum or blood of the patient—and if this can be prepared quickly it can often be used with good effect.

I will briefly mention three very severe pneumococcal infections which were treated as a last resource by autogenous vaccines, and, I am glad to say, successfully.

CASE 1.—A young man, aged 30, was seen in consultation with Dr. Williams. He was suddenly attacked with acute lobar pneumonia of the right base, which rapidly spread upwards, and in a couple of days the other lung was involved. The toxæmia was severe, the temperature reached 105° F., and the pulse-rate was 160. In addition to general treatment he had several injections of stock pneumococcus vaccine and after a great struggle up to the ninth day he had a favourable crisis. Six days after the crisis he developed a large fluctuating swelling in the right lumbar region, which on aspiration was found to contain thin creamy pus full of pneumococci. The swelling was freely incised and drained and was followed by similar abscesses in the neck, the left elbow, and, finally, an enormous swelling over the left hip. This was opened and drained by Mr. D. Douglas-Crawford. About this time the patient commenced to expectorate a large quantity of similar pus, and it was evident that he had an abscess on the right lung. I inoculated a mouse at the Liverpool University, which died in 24 hours from septicæmia. From the heart's blood a pure culture of pneumococcus was readily obtained and a vaccine was prepared. In all Dr. Williams gave him 16 injections of this autogenous vaccine, commencing with 50 millions and rising to 100 millions at a dose. The patient became alarmingly thin and wasted, but after several months of suffering, during which at many times he was not expected to recover, he slowly rallied and is now quite well, with the exception of a little restricted movement of his hip-joint. In this case the improvement only showed itself after the autogenous vaccine was commenced, the patient's condition not being influenced one way or the other by the homologous vaccine.

CASE 2.—A female, aged 25, was seized on the onset of her confinement with a very severe rigor and pain in her right chest. The child was born in a few hours, but the mother rapidly became delirious, with a temperature of 105·2° F. and a pulse-rate of 144. Pneumonia supervened in the right lung, with complete consolidation of all lobes. The patient was in a critical state for eight days, and Dr. James Marsh, of Atherton, with whom I saw the case, remained in the house for over two weeks. Several injections of homologous vaccine were given to supplement the ordinary restorative treatment, and apparently with good effect. On the twelfth day she developed a painful swelling in the left shoulder-joint, extending down the arm and pointing over the bicipital groove. This was opened and drained, and from the pus, which was pneumococcal in appearance, I inoculated two mice at the

[5] Some of these rods may be undergoing degenerative processes.
[6] The difficulty was overcome by adding a little neutral soap, but the bacilli did not grow.

University, and from the blood obtained a vigorous culture of pneumococcus. A vaccine from this culture was prepared and given in doses of 100 millions daily, as the case was desperate. In two days another large swelling appeared over the left hip, which tracked down the thigh under the fascia lata; this was also opened and drained. The pus contained enormous numbers of pneumococci. The patient had in all 14 injections of autogenous vaccine, and finally she made a good recovery. There is still some stiffness with adhesions in the left shoulder, but otherwise she bears no trace of her virulent infection.

CASE 3.—A girl, aged 16, was admitted to the hospital suffering from acute lobar pneumonia with great pain and distension of the abdomen. The pneumonia ran a very acute but short course and the crisis occurred on the fifth day. The abdomen being still very painful and tender to pressure it was thought necessary to explore it. On opening it in the middle line a large quantity of creamy pus escaped, which under the microscope was found to swarm with diplococci and well-marked capsules. Two mice were inoculated and a vaccine was prepared. The abdomen was drained for ten days and after six injections of autogenous vaccine the discharge ceased and the patient made a slow but complete recovery. In the course of her illness she developed puffy swellings over both elbows and the right shoulder. These swellings gave every appearance of suppuration, but after constant fomentation with boracic lotion they slowly subsided and entirely disappeared.

I am convinced that we have in pneumococcus vaccine a valuable aid in the treatment of pneumonia, and although not a specific remedy it ought always to be used in those cases of a virulent type which threaten the life of the patient.

Liverpool.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

DYSPEPSIA OR ULCER?

BY I. B. MUIRHEAD, M.D., C.M. GLASG.

THE following case illustrates a point in the diagnosis of gastric ulcer hitherto little noticed. Whilst emphasising the differences of opinion which still divide the profession with regard to the question of operation, it suggests that localised pain, associated with diminishing weight, may come in many cases to be looked upon as a sufficient indication for surgical interference.

The patient, a woman aged 40, was seen on Sept. 21st, 1914. Three months previously she began to suffer from pain after eating, vomiting, constipation, and failure of strength. Her weight had fallen from 9 st. to 6 st. Vomited matters were usually grey or whitish in colour, occasionally darkish brown; contained no blood. No blood passed from bowel. Inability to procure sufficient food might have had a share in causing the illness, but this was denied very strenuously. The extreme emaciation, languid look, feebleness, and obvious anæmia were striking. In the abdomen, beyond tenderness on palpation, nothing abnormal was found. The position of the pain centre was, however, rather out of the common. It was definitely fixed at the junction of the upper and middle thirds of the line separating the left lumbar and umbilical regions. Here pain after eating was chiefly felt, and this was nearly always the situation of the pain, which led up to the attacks of vomiting. It may be stated that while later pain was frequently complained of elsewhere, the position mentioned, somewhat above and to the left of the umbilicus, was always recognised by the patient as the seat of her chief and permanent pain. No enlargement of the spleen or lymphatic glands; urine normal.

From Sept. 21st to Nov. 4th treatment relieved both pain and vomiting up to a certain point, but the decline of strength and weight showed no improvement. It therefore became obvious that, if surgical treatment was to be given a chance, the time had arrived. She accordingly went to hospital, with a certificate that, in the opinion of her medical attendant, she was suffering from an organic gastro-intestinal trouble. Though the certificate did not mention operation, the patient understood my views and the object of her visit. At the hospital three separate examinations, each lasting about a quarter of an hour, were conducted by different members of the staff, whose unanimous conclusion was that "they could find nothing beyond a history of dyspepsia and constipation."

As already stated, the patient denied that she had ever vomited blood, and down to Nov. 4th repeated examinations failed to discover a single unequivocal hæmatemesis. Almost immediately on returning from hospital she began to vomit blood, and continued to do so in considerable though diminishing quantities for about a week with the usual debilitating effects, accentuated by her already reduced state. From Nov. 10th to 15th, and again on the 21st, dark tarry motions were passed. After the 22nd no blood appeared externally, she vomited seldom, had comparatively little pain, and took nourishment fairly well. Apart from a slight tonsillitis from Nov. 27th to Dec. 3rd the lull in the acute symptoms continued till the morning of Dec. 11th, when rather severe abdominal pain was again complained of. At 11 A.M. on that day her appearance suggested a recurrence of bleeding, her pulse was quick and feeble, and her breathing laboured. She died the same afternoon. A necropsy was refused. In conclusion, I should like to make mention of the services rendered by the King's nurses.

Stoke Newington, N.

NOTE ON THE USE OF ANTISTREPTOCOCCIC SERUM IN ACUTE BRONCHITIS.

BY J. G. HAYES, L.R.C.S., L.R.C.P. IREL.

I DO not know if antistreptococcic serum has been widely used in the treatment of acute bronchitis, but a few remarks on my own personal experience of its use may not be out of place. First of all, I believe I am right in saying that in the majority of cases of bronchitis, and particularly the more severe forms, some strain of streptococcus plays an important rôle; anyway, in cases where I have had the sputum examined streptococci have nearly always been found. The following are examples in which I have used the serum:—

CASE 1.—The patient was a woman, about 30 years of age, the subject year after year for some considerable time of recurrent attacks of very acute bronchitis associated with high temperature and great prostration, necessitating confinement to bed for nearly two months at a time. On the occasion of an attack in the beginning of 1913, which was a particularly severe one, autogenous vaccines were used, and though the doses were below the average they were followed by such dangerous reactions that they had to be discontinued after the fourth injection. In 1914 the patient developed symptoms that suggested a recurrence.

There were rigor, pains in the back, rise of temperature, cough, and general malaise; also faint râles quickly became evident over both lungs. I determined to give a polyvalent antistreptococcic serum with as little delay as possible, so that evening, at 9 o'clock, I gave 3000 units of antistreptococcic serum, the temperature being then 102·4° F. The patient had a comfortable night and on the following morning the temperature was 99·6°. It rose towards evening again to 101·4°, so I repeated the injection of serum, and after another comfortable night the morning temperature read 98·8°, above which it made no further rise. Some ten days later, when the patient was up and about, symptoms recurred, but the temperature only reached 100·8°. However, I again administered serum precisely as before, with the result that the following day the temperature was normal, and has remained so ever since.

CASE 2.—The patient, a girl aged 19 years, developed acute laryngitis followed by symptoms of general bronchitis. When I saw her the temperature was 103·2° F. Polyvalent antistreptococcic serum, 3000 units, was administered. On the following morning the temperature was 101°; no rigors; cough soft; expectoration easy. The temperature that evening was 99·8°, and from this time on there was a general abatement of symptoms with rapid recovery.

CASE 3.—The patient was a man, aged about 63 years, the subject of chronic bronchitis with frequent acute exacerbations during the winter months. I saw him for the first time in the early stages of one of these acute attacks. I gave him the serum as in the previous cases, which was followed by an improvement that was progressive and maintained, so that no repetition of the treatment was necessary.

From these results I formed the following conclusions: 1. That the streptococcus was the main cause of the toxæmia in most case of acute bronchitis. 2. That, giving an antistreptococcic serum in the early stages will increase the blood resistance against the micro-organism that is likely to cause the most serious trouble. 3. That the serum may be given and repeated without the fear of such dangerous reactions as I, at any rate, have experienced with vaccines. 4. Serum has the great advantage that it can be got at once, where a vaccine, which if it is to be any good, must be autogenous, and cannot be secured for some days.

It would be interesting to have the opinions of others on this subject, for certain it is that, provided proper aseptic precautions are carried out, the early treatment by serum injection is associated with very little risk, and will help to combat a very common and dangerous enemy which is ever waiting to find an entrance to the human body. The treatment applied to other acute diseases may give similar results, but the effect on these cases impressed me considerably.

St. James's-place, S.W.

EDINBURGH SICK CHILDREN'S HOSPITAL.—The annual meeting was held in the board-room of the hospital on March 17th. Mr. Charles I. G. Paterson, vice-chairman of directors, presiding, referred to the absence at the front on military service of their chairman, Colonel James Clark. He took the opportunity of publicly thanking Colonel and Mrs. Clark for all they had done for the hospital. Fifty years ago, he said, they had only 20 beds; now they had 120, and 2166 children had passed through the wards in the year. The out-patient departments showed the equivalent of 27,000 visits. The year's expenditure was about £9600, but still there was a deficit of £3800 which had to be met out of the legacies. Dr. A. H. Freeland Barbour, President of the Royal College of Physicians of Edinburgh, moved a resolution commending the Children's Hospital to the liberality of the public. The care given to children reduced the mortality of the city and might preserve to the country a Jellicoe or a Kitchener.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF DERMATOLOGY.

Exhibition of Cases and Specimens.

A MEETING of this section was held on March 18th, Dr. J. J. PRINGLE, the President, being in the chair.

Dr. J. A. NIXON showed the Parasite "Pediculoides Ventriculosus" responsible for the disease known as "cotton-seed dermatitis," an epidemic of which occurred among dock labourers in Bristol in January, 1915, the parasite probably being the same as that causing "barley itch."—Dr. A. WHITFIELD demonstrated the Acarus obtained from a specimen of Copra which was responsible for the disease known as "copra itch"; the lesions were almost identical with those described by Dr. Nixon and yielded readily to treatment by sulphur ointment. It was surprising that although the disease was well known to practitioners in the East End of London it was not generally recognised in the hospitals.—Dr. J. M. H. MACLEOD had seen one case of copra itch and one of cotton-seed dermatitis. He had come to the conclusion that in the latter condition the acarus was a parasite of a caterpillar found in great abundance in the cotton seeds.—Dr. GRAHAM LITTLE and Dr. G. PERNET discussed the cases.

Dr. J. H. STOWERS brought up two brothers with Alopecia due to over-dosage of X rays in the treatment of ringworm.—Dr. DUDLEY CORBETT, Dr. KNOWSLEY SIBLEY, and Dr. PERNET discussed the prognosis.

Dr. PERNET showed a case of Iodide Eruption with much pigmentation in a man suffering from syphilis who had treated himself with a familiar "blood mixture."—The PRESIDENT, Dr. WHITFIELD, Dr. A. EDDOWES, and Dr. PARKES WEBER discussed the case.

Dr. PERNET also showed a typical case of Non-ulcerating Erythema Induratum in a girl aged 15.—The PRESIDENT and Dr. GRAHAM LITTLE made observations on the case.

Dr. SIBLEY brought forward a case of Nodular Lupus Vulgaris complicated with Lymphangitis in a girl aged 18, in which the microscopic appearances were unusual and the von Pirquet reaction negative.—Dr. WHITFIELD considered the sections to be typical of lupus vulgaris. He thought that the disease was likely to be aggravated by the streptococcal lymphangitis.—The case was further commented on by Dr. H. G. ADAMSON, Dr. S. E. DORE, Mr. J. E. R. MACDONAGH, and Dr. DOUGLAS HEATH.

Dr. DORE and Dr. KINNIER WILSON showed a case of probable early Anæsthetic Leprosy in which there was dissociation of sensation in the lower extremities with thickening of the skin over the knuckles, blisters between the toes, and dystrophy of several nails both of hands and feet.—Dr. WHITFIELD suggested the Wassermann test in addition to a tuberculin injection.—Dr. PARKES WEBER and Dr. PERNET favoured the diagnosis of leprosy.

Dr. ADAMSON showed a case of large Circinate Lichen Scrofulosorum in an adult.—The PRESIDENT remarked on the rarity of this condition in adults as compared with its frequency in children.

Dr. ADAMSON also showed a case of Macular Atrophy and accentuated the toxæmic origin of the condition, which was often due to syphilis or tuberculosis.

Mr. H. C. SAMUEL exhibited a Linear Nævus on the thorax, neck, axilla, and forearm of the left side. The condition had not manifested itself till 16 years of age.—Treatment by means of carbon dioxide snow was discussed by Dr. GRAHAM LITTLE and Dr. ADAMSON.

Dr. PARKES WEBER demonstrated a case of Generalised Atrophic Sclerodermia with Sclerodactylia in a middle-aged woman. He made special reference to the absence of pulsation in the dorsalis pedis arteries, an observation which was confirmed by Dr. STOWERS.

Dr. GRAHAM LITTLE brought forward a boy with Simultaneous Herpes Zoster of the third and eighth left dorsal segments, the intervening areas being free from lesions; he considered the case unique.—The PRESIDENT, Dr. A. M. H. GRAY, Mr. SAMUEL, Dr. ADAMSON, and Dr. HEATH spoke on the subject.

Dr. GRAHAM LITTLE further showed (1) a case of Epithelioma of the thigh in a woman, aged 63, resulting from an injury to a congenital pigmentary patch; and (2) a case of Dermatitis Herpetiformis in a boy, chiefly affecting the neck, chest, and groins.—The PRESIDENT commented on the difficulty of differentiating between Duhring's disease and pemphigus, and Dr. ADAMSON concurred.—Dr. HEATH agreed with the exhibitor's diagnosis, and advocated the exhibition of arsenic.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

SECTION OF MEDICINE.

Exhibition of Case of Lupus Vulgaris.—X Ray Treatment of Ringworm.—Prophylactic Inoculation against Tuberculosis.

A MEETING of this section was held on March 5th, Dr. W. G. SMITH, President of the Academy, being in the chair.

Dr. C. M. O'BRIEN showed a boy, aged 13, who was suffering from a very pronounced form of Lupus Non-exedens for the last nine years. Although widespread, the face and mucous membrane were practically free. Since admission on Oct. 8th, 1914, the boy had gained 11 lb. For almost three years he had received at the London Hospital one hour's exposure of Finsen light on five days of the week. Since Oct. 8th, 1914, he had had three sittings per week of 70 minutes each. The most that could be claimed was that it stopped the spread. Dr. J. Griffiths, of Cambridge, had inoculated a guinea-pig from the lupus tissue with positive results.

Dr. E. J. M. WATSON read a paper on X Ray Treatment of Ringworm.—Dr. SMITH said the whole point of X ray treatment was that this method had reduced to weeks a period of treatment which was formerly measured in months. The only change in X ray treatment in recent years seemed to be the substitution of frequent exposure to small doses for larger doses given at longer intervals. To epilate a child's head was a troublesome process, and he suggested that X ray treatment was forceps treatment abbreviated. He maintained that no case of ringworm should be certified as safe so long as one diseased hair could be found.—Dr. W. G. HARVEY could support Dr. Watson's statement that occasionally cures occurred without epilation being complete. The diseased hairs were more freely epilated than the healthy. He had usually employed an antiseptic ointment, believing its effect to be mechanical.—Dr. O'BRIEN said that notwithstanding diversity of opinion as to the effect of X ray treatment on ringworm, the statistics of Paris should leave no doubt as to the efficacy of the procedure. Sabouraud held that at the end of 1906, after three years' work, the municipality of Paris had gained financially 2½ millions of francs by the adoption of X ray treatment. He had made it a *sine quâ non* before treating a child under the age of 3 to get the consent of the parents in writing, as it had been suggested in some cases treated in London that the exposure to X rays had some effect on the brain of a child.—Dr. M. R. J. HAYES, in regard to permanent alopecia as a result of the treatment, suggested scrupulous accuracy in the measuring of the dose and caution in the use of old tubes in the treatment of ringworm, as one could not be sure of their vagaries. Tubes which had been used for many hours in a period of months would give off rays greater than one would expect. He had used cataphoresis with copper sulphate ions, but this was somewhat troublesome and was more painful.—Dr. WATSON, replying, said his practice was to expose each area with the dose of one Sabouraud for a quarter of an hour. If one's tube was new and working properly he did not think there was any danger of baldness even in very susceptible cases.

Dr. W. M. CROFTON read a paper on Prophylactic Inoculation against Tuberculosis, and said that practically everyone who attained to adult years got infected with tuberculosis. Two objects presented themselves: (1) to prevent the microbe obtaining access to the patient; (2) to make the patient's tissue unsuitable for the development of the microbe. While it appeared impossible to prevent the microbe gaining access, only a proportion of those infected developed the disease to a serious extent. The recovery of the majority was due to a normal resistance; therefore the problem would be solved if the resistance of the minority could be made and kept normal. Low resistance was due to (1) bad hygienic surroundings; (2) lowering of resistance by other microbes; and (3) inhibition. A normal resistance might be overcome by a virulent infection. General sanitary measures, while they kept down morbidity and mortality to a certain level, would not entirely prevent disease. The only method was to render the soil unsuitable by prophylactic inoculation. The probability of the success of this measure and the method of carrying it out were discussed. T.R. was used dissolved in liquid paraffin containing 2 per cent. benzoyl chloride. The doses were given at intervals of a week, increasing ten times each administration. They began at one-millionth of a milligramme and rose to one-thousandth for infants. Ten times these doses might be given to older children, and for adults an extra dose of one-tenth milligramme might be given. The test of success would be the reduction of case incidence and of mortality. The experiment was innocuous, cheap, and easily carried out. A beginning might be made in families in which tuberculosis had occurred.—Dr. T. G. MOORHEAD said that he had come to the conclusion that tuberculin as a prophylactic remedy against tuberculosis was not of much value. As one looked around, two types of infective disease were recognised. Of one, small-pox was the type, and of the other tuberculosis. In tuberculosis it would seem that a sufficient amount of antitoxin was not produced to prevent a patient from getting a second attack. A survey of such remedies showed that certain of them had been permanently accepted as useful—e.g., vaccination for small-pox and 606 for syphilis; but of tuberculin, although it had been before the profession now for over 20 years, the value had not become admitted, and at the Congress of Medicine much doubt was expressed as to its utility.—Professor B. J. COLLINGWOOD asked if it was not possible that the liability to tuberculosis which exists in certain individuals is due to the fact that they do not possess the power to produce antibodies to prevent tuberculosis?—Dr. SMITH and Dr. LAW also spoke.

ÆSCULAPIAN SOCIETY.—A meeting of the above society was held in the Metropolitan Hospital on March 19th, Dr. David Ross, a Past-President, being in the chair.—The resident staff showed some interesting cases and skiagrams.—Mr. W. S. Soden showed: 1. A man with a large mass in the abdomen, found on operation to be fixed to the abdominal wall. Gumma was suggested. 2. A man, aged 50, with rapidly growing Epithelioma of the Soft Palate on the left side, treated by diathermic cautery with excellent results. 3. An anæmic man with Chronic Laryngitis of doubtful origin, syphilitic or tuberculous. Wassermann reaction negative even after provocative dose of neosalvarsan. No tubercle bacilli were found. 4. A man, aged 26, with Comminuted Fracture of the Right Clavicle. 5. X Rays of Shrapnel Wounds showing metal remaining after healing of wounds.—Mr. C. K. Sylvester showed: 1. Skiagram of a Bullet in the Muscles of the Back. 2. Case of Cerebro-spinal Meningitis, no loss of abdominal reflexes, and persistent Kernig's sign. Diplococcus found only on third examination. Three grains of soamin were administered on March 4th and two grains on March 10th, followed by fall of temperature for two or three days. An unexplained rise of temperature proved to be the onset of measles. 3. Spasm of Cardiac End of Œsophagus. History of vomiting for two years. A bismuth meal revealed great dilatation of the œsophagus ending in a cone-shaped shadow. No evidence of new growth. Jejunostomy suggested, and later when the condition improves gastrostomy.—Mr. Mawer showed: 1. A boy, aged 14½ years, with swelling under the mandible on the left side, noticed by him since Dec. 14th. After discussion a cystic hygroma was diagnosed. 2. A small female child, aged 4 weeks, with a cystic swelling of the left buttock, which was agreed to be an anococcygeal cyst. Treatment was deferred until the child had acquired control of her anal sphincter.—Mr. Dive showed: 1. A woman, aged 54, with Adiposis Dolorosa. The treatment consisted of the administration of thyroid and pituitary extracts. 2. A child, aged 7 months, with painless bony swelling of two weeks' duration of the proximal phalanx of the right fourth finger. Diagnosis: T.B. dactylitis, confirmed by X rays. 3. A child, 6 weeks old, suddenly noticed to have a swelling of the right elbow; false paralysis of that arm. Diagnosis of epiphysitis.

Reviews and Notices of Books.

Feeble-mindedness: Its Causes and Consequences. By HENRY HERBERT GODDARD, Ph.D., Director of the Research Laboratory of the Training School of Vineland, New Jersey, for Feeble-minded Girls and Boys. New York: The Macmillan Company. 1914. Pp. 599. Price 17*s*.

THE main object of this book, as stated in the first chapter, is to consider the problems of crime, pauperism, intemperance, and the social evil from a new standpoint; and the new hypothesis with which the author starts may be shortly summed up as follows: There are all grades of responsibility—or all grades of intelligence—from zero to the highest; that responsibility varies according to the intelligence; that intelligence is a relative matter, and certain people may therefore be responsible in some environments while they would be irresponsible in others; and that in order to grade responsibility with a view to social work and treatment the intelligence must be measured and an attempt made to draw the line between normal intelligence and defect. The author proceeds to state that persons "below the line of normal intelligence" have been at different periods called by different names; being originally styled "idiots," later "imbeciles," and, still later, "feeble-minded"; and that now, by common consent, the custom has grown up of applying the term "feeble-minded" to the highest grade of defectives only, confining the two other terms, "imbecile" and "idiot," to the middle and lowest grades respectively. This, he correctly says, is now the common classification in England, and he also mentions that, as a general term for all groups, the word "aments" is sometimes used. But in America the word "feeble-minded" has been for long widely used both as the generic term for all and for the highest grade alone; and the author informs us that since what is known as the "Binet measuring scale of intelligence" and the grading of children by their "mental age" have been adopted in America, the term "moron" has been substituted for "feeble-minded" as the designation of the highest grade. It is claimed that the study of "morons" in American institutions for the feeble-minded has resulted in the drawing of a line which marks the degree of intelligence to which these people cannot reach, and are consequently incapable of functioning properly in a highly organised society.

Following on these preliminary statements, and in relation to them, the social problems of alcoholism, crime, prostitution, and pauperism are successively considered.

For the rest, this book consists chiefly of a detailed series of 327 unselected cases, not of "morons" only but of all ages and grades of defect; and it is said that the theories presented and the conclusions arrived at have been merely those that were suggested by the data themselves. Among the chief conclusions that have been forced on the author by the figures is that normal intelligence is a "unit character," transmitted in true Mendelian fashion.

We have no space to deal at length with the elaborate records of cases which occupy by far the largest portion of this book. Whether or no the conclusions appeal to thoughtful (or, according to the peculiar orthography which pervades this work, *thotful*) readers, these records will be of interest to the clinical student of mental defect. But the classification of cases into several groups, such as hereditary, probably hereditary, neuropathic, accidental, and so forth, seems to us to be very superficial; to involve confused notions regarding the meaning of heredity; and to consist, in a great degree, of mere opinions. To give one instance, a certain boy classed as a high grade (moron) was the only living child of a mother who had had eight miscarriages or stillbirths. The mother was a "normal," of a normal family; the father was also normal, "but evidently a carrier of defect, since his mother was feeble-minded. He was alcoholic, and went with a fast set, which undoubtedly accounts for the miscarriages. To confirm our theory that the father must have been a carrier of 'feeble-mindedness,' we have only to look at an older brother who is feeble-minded, and married a feeble-minded woman. ..... There is no doubt that this boy has inherited the defect thru his paternal grandmother."

One of the most glaring faults in this book is the elementary mistake of regarding "intelligence" as synonymous with "mind," an error which marked also the essay of Professor Karl Pearson on this subject, which was reviewed in THE LANCET of Jan. 2nd. Indeed, Professor Pearson appears to us to have had in view the work now under consideration when writing his paper, in that he not only pointed out that there are other factors, such as the "moral" factor (which he does not consider "mental"), in the complex commonly known as "feeble-mindedness," but also set forth his own refutation of the teaching that mental defect is to be regarded as a Mendelian trait due to the absence of the "unit character" of normal-mindedness from the germ-plasm. We agree fully with Professor Pearson in his demolition of this theory of a "unit character" in relation to feeble-mindedness, and thus may pass over this doctrine, which is emphasised so strongly in this book, without further notice.

The diagnosis of "feeble-mindedness," or "moronism," is not a matter concerning the intelligence only. It is a matter of *mental defect* (in the proper sense of that word), as evidenced chiefly by careful observation of conduct and by study of the history of each case, leading to an inference of the incapacity of the subjects to adjust themselves effectively to their social surroundings. We believe that no definite hard-and-fast standard of intelligence alone, such as that adopted by the author, for facilitating clinical work, nor, again, any prescribed method of "standardising judgments as to the grade of social inefficiency which shall involve segregation," as hoped for, but not indicated, by Professor Pearson, is to be reached or sought for. On the other hand, we hold that, in spite of inevitable differences of opinion regarding some cases, a careful history and prolonged observation of most alleged instances of feeble-mindedness will enable most students of mental defect to come to a right and practically useful conclusion. We agree to a certain limited extent with the author's views as to some causal relation of feeble-mindedness to crime, alcoholism, prostitution, and pauperism, but believe that the far-reaching conclusions arrived at by him are not borne out by facts, and would be very misleading if regarded as duly established.

We have not entered here into the question of the "heredity" of feeble-mindedness because

there is a general agreement, whatever views may be held as to the nature and mode of heredity, that there is a vastly greater probability of offspring with marked mental defect being born of forebears with a similar defect than of those not so characterised. There is, of course, much evidence to this effect in the interesting cases reported in the book before us; but we find nothing that can be regarded as of fresh scientific or practical import.

The Anatomy of the Human Skeleton.

By J. ERNEST FRAZER, F.R.C.S. Eng., Lecturer on Anatomy in the Medical School of St. Mary's Hospital; formerly Lecturer at King's College, London; Senior Demonstrator at the Medical School of St. George's Hospital; and Examiner in Anatomy for the Conjoint Board of the Royal Colleges of Physicians and Surgeons. With 219 illustrations, many of which are coloured. London: J. and A. Churchill. 1914. Pp. 274. Price 21*s.* net.

IT is but rarely that a reviewer experiences the real pleasure afforded by the reading of a book on human anatomy which may truly be termed new—new both in its illustrations and in its text. But such a book is that produced by Professor Frazer, which possesses the added charm that in the very manner of treating the subject the author has struck out new lines for himself. Among the flood of new editions and reprints which it is our lot to wade through, this book comes with its novelty as a particularly refreshing thing; and it must be remembered that if this sense of relief should unconsciously colour the impressions of the reviewer, it is likely also to have its influence upon the student, perhaps wearied by the monotony of his old companions. This is a virtue difficult to over-estimate.

Professor Frazer has more nearly than any recent writer "made the dry bones live" for the student of anatomy, if we may be pardoned the old quotation. He has placed the bones before the student as functioning parts of a living body; a mass of mere description of surfaces and borders is avoided, and the bone is studied in all its complex relations to the surrounding structures. It is safe to say that the knowledge gained by the student from following such a course is far more real, and far more likely to be useful than that gained by any method such as the one (alas, ascribed originally to the great Vesalius!) of carrying dried bones at all times in the pocket. We think, perhaps, that the book does not end quite so well as it begins; that the treatment of the skull is not carried out quite so fully as is that of the rest of the skeleton; but this must not be taken as saying that the work here is not done in an excellent and sensible manner.

The illustrations are the work of the author and they are bold and striking, and the text is clear and ample. Two things will, we think, be criticised by a lecturer on anatomy, who is regarding the work as the most recent text-book of the science of osteology, rather than as a work from which the medical student may learn of the human skeleton. In the first place, few authorities are named and practically no references are given to the literature; in the second, the old terminology has been retained. It is perfectly obvious that this is deliberate on Professor Frazer's part, and we commend his attitude; for if we regard the work as a handbook for medical students, it is not difficult to see that these very features are in reality positive virtues in such a book. Professor Frazer is to be congratulated upon the production of this volume, for in it the medical student has been provided with a book on bones which he can read with interest, which will put him on the right lines for finding out more for himself, and will give him knowledge that will serve him long after his student days.

The whole "get up" of the book is good—we have here, in short, one of the best additions to the student's library made of recent years.

The Practice of Surgery.

By JAMES GREGORY MUMFORD, M.D., Lecturer on Surgery in Harvard University, &c. Second edition, thoroughly revised. With 683 illustrations. London and Philadelphia: W. B. Saunders Company. 1914. Pp. 1032. Price 30*s.* net.

THE present edition of this book has been fully revised so as to record the progress and changes that surgery has undergone in the four years since it first appeared, and we wish to reiterate the very favourable opinion that we expressed of the book at that time. The reader will be impressed with the tone of the author, and will recognise that he writes from a wide experience and with a calm judgment capable of estimating correctly the new facts, theories, and methods which are always being brought forward, though there may be some things in the book with which he can hardly agree. The author states in his preface that he has read 70 reviews of his book and that his reviewers do not always agree with him, but adds that neither do they always agree with one another, a comment which shows the book to be a really thoughtful work maintaining a high standard.

The illustrations are all that can be desired. In our former review we referred to the frontispiece which represents the changes that have taken place in surgery, one picture showing the first public demonstration of ether anæsthesia in the Massachusetts General Hospital on Oct. 16th, 1846, and the other showing an operation in the same hospital in May, 1908. The difference is very striking, but some surgeons of to-day would say that even the latter picture does not show the practice of 1915.

Carcinoma of the Thyroid in Salmonoid Fishes.

By H. R. GAYLORD and M. C. MARSH. With 55 plates. Buffalo, N.Y.: State Institute for the Study of Malignant Disease. 1914. Pp. 524.

THIS large quarto monograph falls naturally into two parts: one dealing with the histology and morbid anatomy of thyroid enlargement, and the other devoted to a discussion of the conditions associated with varying frequency of the disease and experimental variations of these conditions. The plates refer almost entirely to the first part, and give a very complete picture of the structure of the conditions from the earliest hyperplasias to the most advanced growths. Being mostly prepared from microphotographs they show the limitations of this method of illustrating histological work, the most successful photographs being those taken with very low powers. While these are all admirable, the same cannot be said of the higher magnifications. This indistinctness is particularly unfortunate in the case regarded as a visceral metastasis from a thyroid tumour. The importance assigned to this case by the authors makes it all the more regrettable that only presumptive evidence could be adduced of the coexistence of a thyroid tumour in the fish in question. The conclusion is drawn, from the completeness of the series of transitional forms between the slightest degrees of hypertrophy and the large atypical destructive growths, that "endemic goiter and carcinoma of the thyroid in the Salmonidæ are the same disease."

From their study of the conditions under which the disease appears in fish hatcheries, and from their experiments, the authors conclude that this disease is due to a water-borne virus, and that the liability of fish to it is enhanced by artificial proteid feeding, overcrowding, and other factors. In addition to the beneficial effect of iodine already noted by Marine, mercury and arsenic are also stated to influence the condition in the same way. The numbering of the pages seems to have been altered in the press, as the authors' references to their own observations are all incorrect. This adds a needless difficulty to the task of following their arguments.

Water Supplies: Their Purification, Filtration, and Sterilisation.

By SAMUEL RIDEAL, D.Sc. Lond., and ERIC K. RIDEAL, B.A. Cantab., Ph.D. Bonn. With numerous illustrations and tables. London: Crosby Lockwood and Son. 1914. Pp. 274. Price 7*s.* 6*d.* net.

THE subject of water-supplies is approached in this book mainly from the standpoint of modern methods of purification, and as the advances made in this direction have been considerable during recent years, particularly in America and this country, Dr. Samuel Rideal and his son, Dr. Eric Rideal, have done good service in furnishing us with a handbook that takes into account these modern developments. The chapter on storage affords a good example of the comparatively recent steps taken for the preliminary purification of water by this method. "In the case of London alone the storage has been increased in the ratio of 1 to 6·3 in 24 years." Thus under the eight companies the total storage capacity in 1884 in millions of gallons was 1444·5, whereas in 1908, under the Metropolitan Water Board, the storage capacity was 9156·7 gallons. The water stored in such large reservoirs not only parts with its silt but also with the larger portion of its contained bacteria, the majority being carried down by the silt to which they have attached themselves, and the remainder for the most part perishing for lack of adequate food supply and subsequently sinking. These observations emphasise the importance of storage, and lend to the conclusion that in some cases there may be no need to filter the supply.

In regard to the softening of water the ingenious permutit process is described. This artificial zeolite contains the silicates of aluminium and sodium, and when a hard water is passed through a bed of it, the sodium of the permutit is replaced by the calcium and magnesium of the water which now contains sodium carbonate as an equivalent of the calcium and magnesium salts formerly present.

The chapter on sterilisation is very interesting, and includes valuable references to recent applications, a field in which Dr. S. Rideal has laboured successfully. This is succeeded by an account of electrical modes of sterilisation, including a description of certain installations in which the sterilising power of ozone, electrolytic fluid, the direct current itself, and the ultra-violet light of the quartz mercury lamp are described. The section on analysis and interpretation of results is somewhat short, but, of course, this subject shares little in the main theme of the work. The references to literature are copious, and altogether the book gives a very good insight into the present scientific position of water administration.

MISCELLANEOUS VOLUMES.

IN the preface to the *Manual of Instruction for the Royal Naval Sick Berth Staff* (printed for H.M. Stationery Office. 1914. Pp. 507. Price 2*s.*) it is stated that this book has been written for three reasons: to provide a text-book for probationary sick berth attendants; to promote uniformity of instruction at the naval hospitals; and to provide a concise and comprehensive manual for the sick berth staff in preparing themselves for examination for the higher ratings. These objects have been successfully attained, and it would be difficult to find elsewhere so much useful information on the subjects treated of in an equally compact and inexpensive form. (The analogous manual of medical corps training for the army is also very good, but its scope is different.) In the first hundred pages is given a summary of anatomy and physiology, quite sufficient for the purpose, and well illustrated by 70 figures. A few pages follow on bacteriology, and then the main facts of pathology and treatment are plainly set forth in regard to inflammation, hæmorrhage, injuries, poisons, and the chief groups of diseases, so far as is needed by an intelligent and well-trained nurse. Sick cookery and anæsthetics are dealt with, and a list is given of drugs and appliances, with their properties, doses, and uses. The instructions for stretcher-bearers occupy very little space, and there is much less in the way of drill or routine work than in the analogous medical corps in the army. The book is well printed and illustrated. It is not correct to state that proteids are the only foods that form tissues (p. 92), as fatty tissue is of course largely formed from the fatty food that is eaten and partly also from the carbohydrates. It is also not quite accurate to say that spores of bacteria are killed "by the action of the various antiseptics and disinfectants" (p. 101); there are many useful antiseptics that are not actually bactericidal, though no application is truly disinfectant unless it destroys bacteria and their spores. This book is an official publication and anonymous. The author has been most successful in producing a comprehensive manual, admirably adapted for the purpose for which it was written.——Lieutenant-Colonel R. J. BLACKHAM'S *Indian Home Nursing* (Third edition. Simla: St. John Ambulance Association. 1914. Pp. 235. Price 1 rupee), for the guidance of nurses in India, has reached its fifth thousand, which shows that it has been appreciated. It contains the material for the five official lectures of the St. John Ambulance Association, and deals with all nursing matters in quite sufficient fulness. It is not clear what is meant by the period of exclusion (e.g., 16 days in measles) "from the day disinfection has been completed in the case of infected children." The difference between cocoa and coca might have been explained in a book intended for popular use. The carbonic acid present in air is not 4 per 1000 (p. 16). On the whole the book is very useful and trustworthy.

The latest addition to the Pocket Guide Series, price 1*s.* each, published by the Scientific Press, Southampton-street, London, are *The Muscular System* and *Notes on the Nervous System*, the former by Dr. HAROLD BURROWS and the latter by Dr. EDWIN L. ASH. Dr. Burrows gives a brief sketch of the most important features of the anatomy of the skeletal system, his classification being based upon function, while Dr. Ash summarises the main lines on which the nervous system is constructed. Of course an adequate knowledge of both these subjects can be obtained from standard text-books only, but for revision purposes the pocket guides should prove useful to students, and nurses will probably find in the books all that they need. For the benefit of nurses in particular a chapter on the more common diseases of the brain is appended to "Notes on the Nervous System."

An Index to First Aid, by J. M. CARVEL, M.R.C.S., L.S.A., Hon. Associate of the Order of St. John of Jerusalem (London: John Bale, Sons, and Danielsson. Pp. 135. Price 1*s.* net), is described as a vade-mecum for the ambulance worker and all interested in the subject of first aid to the injured, its purpose being to indicate briefly the correct line of action to be adopted by the "first aider" in any particular case, this being facilitated by an alphabetical arrangement of subjects. Such an index of terms and treatment may conceivably be useful to ambulance workers pending the arrival of a medical

man, and also as a ready means of refreshing the memory for purposes of study, but the first aid worker if he is to be of real use should have his knowledge at his finger ends. The book is illustrated and interleaved with blank sheets for memoranda.

JOURNALS.

The Indian Journal of Medical Research, Vol. II., No. 2.—This number contains 12 original articles, the first two of which deal with the subject of malaria, one being contributed by Captain E. C. Hodgson, I.M.S., on the incidence of the disease in the recently constituted province of Delhi, illustrated by photographs, maps, and charts; the other by Major E. L. Perry, I.M.S., treating of the endemic malaria of the Jeypore Hill Tracts of the Madras Presidency. Major Perry's paper is illustrated by several plates and diagrams and a map.—The next article is by Captain W. S. Patton, I.M.S., of the King Institute, Madras, who gives the results of the examination of the peripheral blood of 84 patients suffering from kala-azar in the General Hospital at Madras during the 12-month period ended July 15th, 1913.—Two other papers deal also with kala-azar, and both are contributed by Major F. P. Mackie, I.M.S. The first, with a map, describes the progress of the disease in a localised community in the endemic area situated between the Brahmaputra River and the Garo Hills, this region being the oldest known focus of kala-azar in the province of Assam. The second is a note, with an illustrative plate, on some bodies of unknown nature found by Major Mackie in the fæces of kala-azar patients in Assam. This officer has for some time been engaged in investigating the malady in this region, and his note raises the suggestion that this form of leishmaniasis may after all be spread by means of the intestinal discharges of the patient and not by a blood-sucking insect; but obviously further researches are required before any conclusion upon the matter can be reached.—Major A. C. MacGilchrist, I.M.S., in continuation of his previous work, furnishes a third communication on his cinchona derivatives inquiry, giving a synopsis and discussion of our present knowledge of the molecular constitution and pharmacological action of the more important of the cinchona derivatives.—Some observations on the salivary secretion of the common blood-sucking insects and ticks are contributed jointly by Major J. W. Cornwall, I.M.S., of the Pasteur Institute, Coonoor, and Captain W. S. Patton, I.M.S., of the King Institute, Madras.—A culturable, free-living flagellate, and the determination of the lethal value of certain chemicals thereon, form the subject of an article, which is illustrated by a coloured plate, by Dr. Gopal Chandra Chatterjee, assistant bacteriologist at the Medical College, Calcutta. The flagellate in question was found by Dr. Chatterjee in water taken from a tank, and it grew in ordinary bouillon and peptone water in intensely rich culture. The author regards it as possibly a new species of the sub-family Trypanoplasma of the Flagellata.—Major E. D. W. Greig, I.M.S., who has been employed for some time past upon the systematic study of cholera, supplies two papers to this number of the *Journal*, the first dealing with the simultaneous occurrence of cholera and cholera-like vibrios in the tissues of persons suffering from the disease; and on this part of the subject he promises a further contribution at a later date. His second paper is on the hæmolytic action of Indian strains of cholera and cholera-like vibrios.—A joint article by Major W. F. Harvey, I.M.S., and Captain H. W. Acton, I.M.S., treats of methods of estimation of quantity of organisms in suspension, the organism chosen for this investigation being the dysentery bacillus.—Lastly, Major Clayton Lane, I.M.S., gives a detailed description, with eight illustrative plates, of suckered round-worms found in India and Ceylon.—This number maintains well the high practical and scientific standard set by the articles already published in the *Journal* by the officers of the Indian Medical Service.

British Dental Journal.—The issue for March 1st contains an article by Dr. J. H. Sequeira on oral affections from the dermatological standpoint. After referring to syphilis he draws attention to oral tuberculosis and lupus, and then discusses the possible relationship of the erythemata to oral sepsis. Jacquet's hypothesis that alopecia areata was intimately associated with trigeminal irritation does not, he thinks, stand the test of careful clinical investigation.—Mr. W. H. Dolamore has a short note on the value of metal "cap splints" for the treatment of fractured mandibles. He draws attention to several practical points in their manufacture and adaptation, and speaks highly of the results obtained from their use.—Mr. A. Barrett contributes an article on the antiseptic and germicidal value of ether, and Mr. Valentine Kay one on the treatment of cysts.

New Inventions.

BONE GRAFT CALLIPERS.

IN performing a bone-grafting operation it is necessary to have some ready means of accurately measuring the extent of the bed the proposed graft is to occupy. The instrument here illustrated I have found exceedingly useful. It presents three advantages: (1) The character and

size is such as to obviate the necessity of introducing the fingers into the wound—a desirable aim in all bone surgery; (2) after the measurement is taken the callipers can be laid aside, without any chance of losing the exact distance ascertained; and (3) the sharp points conveniently mark the limits of the graft in the periosteum of the bone chosen—usually the inner surface and crest of the tibia.

The instrument has been made for me by Messrs. Mayer and Meltzer, Great Portland-street, London, W.

HARRY PLATT, M.S. Lond., F.R.C.S. Eng.,
Surgeon to and Surgeon in Charge of the Orthopædic Department, Ancoats Hospital, Manchester.

ISOLATION HOSPITALS IN CORNWALL.—The Local Government Board has recently requested the Cornwall County Council to consider the inadequate isolation accommodation in the county, especially in view of the likelihood of outbreaks of infectious diseases when soldiers return from the front. The medical officer of health states that, excluding small-pox hospitals, there are nine isolation hospitals in the county and 33 districts are quite unprovided for. A special meeting of the council was accordingly held last week, at which a committee was appointed to consider the subject.

CENTRAL MIDWIVES BOARD.—A special meeting of the Central Midwives Board was held at Caxton House, Westminster, on March 12th, Sir Francis H. Champneys being in the chair. A number of midwives were struck off the roll, the following charges amongst others having been brought forward: Not observing the antiseptic precautions prescribed by Rules E. 3 and 7; neglecting to cleanse the child's eyelids as prescribed by Rule E. 15; being unable to take and record the pulse and temperature of patients, as required by Rule E. 13; not keeping the register of cases as required by Rule E. 23; and the midwife refusing to give to the inspector of midwives reasonable facility for the investigation of her mode of practice, as prescribed by Rule E. 24. The midwife not keeping her appliances in a cleanly condition, as required by Rule E. 1; not possessing the appliances and antiseptics required by Rule E. 2; and, in spite of repeated warnings, failing to comply with the rules of the Central Midwives Board. Neglect to disinfect the hands and forearms, as prescribed by Rule E. 3; neglect to wash and swab the patient's external parts prior to the confinement, as required by Rule E. 7 (a); washing the patient with dirty water during the lying-in period, and neglecting the antiseptic precautions required by Rule E. 7. Medical aid having been sought for a patient, the midwife neglected to send any notification thereof to the local supervising authority, as required by Rule E. 21 (1) (a); being under the influence of drink on more than one occasion when attending a patient, and not being scrupulously clean, as required by Rule E. 1.

THE LANCET.

LONDON: SATURDAY, APRIL 3, 1915.

Health and Occupation.

AT a recent meeting of the Eugenics Education Society Sir ARTHUR CLAY read a paper on Eugenics and the Poor-law, in the course of which he touched on some problems of peculiar interest at the present moment. Having pointed out that the great war in which this country is now engaged is a severe test of the national character, he showed that it is therefore in some measure a test also of the value and efficiency of the various social agencies which directly or indirectly affect the vigour and the vital energies of the population. Of these agencies the Poor-law is one of the most influential, and we may accordingly expect that the reaction of pauperism to the strain of the war will be found to be one of the most instructive and illuminating sociological phenomena arising out of the present crisis.

It will not, of course, be possible for some considerable time to determine the nature and extent of this reaction, but we can already see various indications which warrant us in anticipating that the experience of war will strongly support the view that part, at all events, and probably a large part of the destitution dealt with under the Poor-law is of an artificial and unnecessary character. This, of course, is no new discovery; it has always been recognised that the administration of public relief can be so conducted as to modify very considerably the amount of pauperism, that, as it has been put epigrammatically, "a nation can have as many paupers as it chooses to pay for." But in the present instance we are enabled to see rather more deeply into the biological conditions which allow of this response to pauperising influences, or, as it may be expressed in less special terms, to the influences making for the physical and moral enfeeblement of the population. And we then find, as has been found in respect of other social phenomena under the test of the national struggle for existence, that one of the important lessons to be learned from this war is that under our present social system there is a great deal of preventable waste, that the community does not get the best value out of the individuals composing it, because of the very imperfect adjustment of opportunity to aptitude. As an illustration of this point reference may be made to the effect which the war appears to have had on the general health of the non-combatant population in this country. It was pointed out, for instance, at a recent meeting of the Governors of the Royal Sussex County Hospital at Brighton, that since the commencement of the war the health of the civil population of that town, judged by the demands for hospital treatment, had improved so much that it was possible to make liberal provision for the reception of wounded soldiers without putting any strain on the resources of the institution. And similar observations have been made in other parts of the country, both in regard to general hospitals and in regard to asylums for the insane; though in the latter case the decrease seems to be confined to males, the number of female admissions even showing a slight rise. No one, of course, would think of suggesting that this curious change is due to any directly beneficial influence of the war-like spirit, or that the ultimate effect of a long and fiercely contested struggle under the conditions of modern warfare is likely to be anything but detrimental to the physical and still more to the mental health of the belligerent nations. But it is instructive as showing—for that seems to be by far the most probable explanation of the fact—that the economic readjustments necessitated by the outbreak of hostilities have recalled to activity, and therefore to healthier existence, a considerable number of individuals who under ordinary circumstances would have been nursing their minor ailments. The older and feebler men who were taken on to fill the places of the young and robust recruited for active service have improved in health when once more in regular work and well fed, and they have benefited also, no doubt, by the stimulating sense of being again useful members of the community, especially at a crisis that has greatly exalted the intensity of the social consciousness. Many of those who have been recalled to active employment were probably men whose main disability was the largely conventional one of years. They laid aside their vocations merely on account of having reached a certain age, and, having no particular interest or pursuit to which to turn, inclined to despondency and premature dotage with their concomitant ailments. COWPER sums it up very neatly when he says:

> Absence of occupation is not rest,
> A mind quite vacant is a mind distressed.

To impose idleness upon men merely because they have attained a certain age, or in conformity with a fixed rule in the particular sphere of labour in which they may be engaged, is injurious to the individuals so treated, and is wasteful from the point of view of society. The wrench of enforced leisure when in the prime of life causes premature decay and wretchedness, bringing on permanent ill-health, while a continuously occupied mind favours a ripe old age. In occupations that are not subject to these artificial rules, and most conspicuously in the higher walks of professional life and in the life of the creative artist or the scientific investigator, there is no such abrupt and compulsory cessation of activity, and therefore, too, there is as a rule no phase of premature decadence of mental and bodily powers, no long drawn-out period of ailing inutility.

If, then, we are correct in concluding that our present social and industrial system, by reason of the under-occupation which it enforces on the older and less robust members of society, is an important factor in producing the graver impairment of physical and mental vitality which is responsible for much of the pauperism and ill-health in the community—if that conclusion is justified, we may, perhaps, hope that in the period of reconstruction which must follow the war some effort will be made to devise a less wasteful method of utilising this human material. As matters stand, any decrease in a workman's industrial efficiency, due to advancing years or physical infirmity, tends ordinarily to withdraw him altogether from useful activity in his regular employment, with the result that the value of his acquired skill and technical experience is entirely lost to society, while the man himself suffers in mind and body through being forced to turn to unfamiliar, worse paid, and less interesting forms of labour. Such a system is obviously bad for the community and bad for the individual.

Treatment of Wounds in War.

IN SIR WATSON CHEYNE'S recent Hunterian Oration[1] he gave a preliminary account of investigations which were being carried on by a committee appointed by the Medical Department of the Navy to investigate the question of the immediate treatment of wounds in war. At that time a variety of antiseptics were being examined, among others salicylic acid, but the results obtained with that substance were not sufficiently definite to warrant any special reference to it in the oration. A more detailed account of the investigation will, however, be published immediately in the April number of the *Journal of the Royal Naval Medical Service*, from which it appears that salicylic acid is likely to prove a valuable agent in the treatment of these wounds. Experiments on guinea-pigs with highly infected earth containing large quantities of tetanus bacilli and also of the bacillus aerogenes capsulatus have yielded, shortly, the following results. All control animals died in 30 to 36 hours as the result of infection with the latter bacillus, but those which lived longer as the result of various methods of treatment developed tetanic symptoms. Where the earth was mixed before inoculation with a powder of equal parts of salicylic acid and boric acid (called for shortness bor-sal) no illness resulted. The majority of the animals, in which 5 to 15 minutes after the infected earth was rubbed into the wound the wound was filled up with bor-sal powder, recovered; but where the bor-sal was made into a paste with gum tragacanth the results were not good, possibly, for one reason, because the amount of bor-sal introduced was smaller. Where, after infection with the earth, the wound was in the first place filled up with bor-sal powder and half an hour later with cresol paste (20 per cent.), all the animals recovered and the wounds healed without suppuration. Where bor-sal powder was applied first and antitetanic serum was injected afterwards, all but one of the animals recovered. The committee recommend provisionally that the wounds should be thickly powdered with bor-sal powder, and that the 20 per cent. cresol paste should then be introduced into all the recesses of the wound as soon as possible after the infliction of the injury, and in cases where the wound is soiled with earth antitetanic serum should be given. Steps are being taken to distribute dredgers containing one ounce of bor-sal powder, and tubes with long nozzles containing half an ounce of 20 per cent. cresol paste, to all the ships in the navy, and in case of landing parties each man will be provided with these as well as with the first-aid dressings. This preliminary treatment can be carried out in a very short time and, except in abdominal and thoracic injuries, by anyone who has been instructed, and it is hoped that it may prevent serious infection during the interval which elapses before the wound can be more thoroughly disinfected. If a large number of wounded are received at one time, the orderlies could renew the powder and paste and bandage while the surgeons are attending to the most urgent cases. The more careful disinfection will consist in cleansing the wounds, removing foreign bodies such as pieces of clothing or shell, which may be easily accessible, washing out the wounds with 1–20 carbolic lotion thoroughly, drying them, and then powdering them again with bor-sal, putting in fresh cresol paste; in the case of large wounds a few interrupted stitches will prevent the antiseptic escaping too quickly. A wound so dressed may not require further dressing for a considerable time. These recommendations are, of course, only provisional, and may be varied as the result of experience or of the investigation of other antiseptics, but in the meantime the above suggestions seem worthy of a thorough trial. Those who are interested in the matter will find full details in the forthcoming number of our Service contemporary.

[1] THE LANCET, Feb. 27th, 1915, p. 421.

DONATIONS AND BEQUESTS.—The late Mr. Alexander Elder, of the Elder Dempster Steamship Line, left £100,000 upon trust to found, equip, or endow a hospital for the poor of Govan, at or near the Elder Park, Govan, to be known as the "David Elder Infirmary" (in memory of his father); £50,000 to the Western Infirmary, Glasgow, for a new wing, to be called the "Alexander Elder Wing"; £3000 to the Southport Infirmary; £2000 each to the Southport Convalescent Hospital and Sea Bathing Infirmary and the Royal Southern Hospital, Liverpool; £1000 each to Dr. Barnardo's Homes and the Liverpool Maternity Hospital and Ladies' Charity. The residue of his estate will be divided, at the discretion of his executors, among certain charitable institutions, including hospitals, in Liverpool and Glasgow.

Annotations.

"Ne quid nimis."

THE ROYAL COLLEGE OF PHYSICIANS OF LONDON: ELECTION OF PRESIDENT.

AN extraordinary Comitia of the Royal College of Physicians of London was held on March 29th, Sir Thomas Barlow presiding and delivering the usual Presidential Address, in the course of which he referred to the honours that had been conferred on Fellows, Members, and Licentiates during the year. He especially mentioned Captain A. M. Leake, R.A.M.C., who for the second time had been awarded the V.C. He also reviewed the list of the lecturers of the year, the gifts which had been made to the College, and the medals and scholarships which had been awarded. After consideration of the principal matters which had been discussed at the College, the President read obituary notices of the Fellows who had died during the year—namely, Samuel Herbert Habershon, Edward Cox Seaton, Isaac Burney Yeo, Eustace Smith, John Abercrombie, and Philip Henry Pye-Smith. In conclusion, the President thanked the censors, the officers of the College, and the Fellows for the support they had given him during the time he had occupied the presidential chair. Dr. P. W. Latham proposed a vote of thanks to the President for his address, with a request that it might be printed; he added that the Fellows wished to express their highest appreciation of Sir Thomas Barlow's services to the College whilst President. Sir Thomas Barlow thanked the College and vacated the chair. The ballot then took place for the election for President, and Dr. Frederick Taylor was elected. The Senior Censor, Dr. Percy Kidd, delivered the charge and handed to Dr. Taylor the insignia of office. The new President then gave his faith to the College and expressed his thanks for the honour conferred on him.

THE AIR AS A SOURCE OF EXPLOSIVES.

THE demand recently credited to Sir John French, "Munition, more munition, always more munition," may well have been "Nitrogen, more nitrogen, always more nitrogen," for without nitrogen the most distinctive form of modern munition—namely, the high explosive—cannot be made. There is a vast importance attaching to this element just now; it possesses, as a matter of fact, in time of peace an equal importance, inasmuch as it is an essential constituent of our foods, but until the manufacture of explosives became a matter of national urgency the public was prepared to explain the statement of chemical text-books, which are wont to describe nitrogen as an inert element, as meaning an element of no activity. Ordinarily speaking, nitrogen is comparatively an inert gas; great forces only can find for it affinities; it will not combine under simple circumstances, nor does it exhibit simple characteristics in the same way as the other gases do, as, for example, oxygen, hydrogen, or chlorine. Of course, to some extent it is this very inertness which renders nitrogen a powerful explosive agent. So to speak, it yearns to be free, and a small temptation releases it from the combination in which it is an unwilling partner. It is harmless enough in the air, and we breathe it with impunity every minute of our lives. Yet the future will most likely show that the great foundation of explosives will be the air itself. The world's supply of nitrogen in the form of nitrate has been hitherto derived from the beds of this salt occurring in Chili, and something like 400,000 tons of nitrogen in the form of nitrate are annually exported from that country. But the same quantity occurs in the air over every 13 acres of ground, and the summarising calculation has been made that the whole atmosphere of the world contains 4000 billion tons of nitrogen. In explosives nitrogen may be said to play two parts: it carries in essential oxygen, and then is itself released on combustion in a highly expanded gaseous state. The nitrification of hydrocarbons of the benzene type (toluol) and of phenols supplies the modern explosive. If the issue of war is to depend upon explosives that nation will win who succeeds in utilising the greatest supply of nitrogen, and this consideration has led to some interesting speculations. Should the nitrogen of the air become economically available for the purpose all nations will be equally well off as regards the supply of raw material. The important question remains, however, as to whether all nations will be equally well situated concerning the means of converting this abundant supply into nitric agents. It is only economic power that can do this for practical purposes, and, so far, water power is the cheapest producer of nitric acid from the air. The process is simple, but requiring great energy. If the temperature of the air is raised to an intense degree a point is reached when nitrogen begins to burn and nitrous acid and nitric acid are formed. The necessary temperature is reached by the electric arc flame. The arc flame is most economically produced by water power. Thousands of tons of nitric acid are produced in this way in Norway and Sweden. If bombs and shells, therefore, are to be regarded as the decisive factor in a war, a limited view which we are certain that Sir John French does not take, the nation will win the struggle which can produce the greatest output of these weapons. Assuming that no cheaper method of production than by water power converted into electric energy is available, and assuming again that equally effective explosives of a non-nitric type are not invented, this conclusion affords a suggestive perspective when the countries which possess great natural water powers and great gasworks are remembered. Nitric acid requires partners, and the most effective are produced at the gasworks. As far as we know, carbolic acid and toluene are produced nowhere else in practical quantities, so that the gas industry assumes an importance equal to the great water-power stations when the production of explosives is considered.

THE MEDICAL INSURANCE AGENCY.

AT a meeting of the committee of the Medical Insurance Agency, under the chairmanship of Dr. G. E. Haslip, which was held at the offices of the British Medical Association on Wednesday, March 24th, a report of the work of the agency during the year 1914 and the audited balance-sheet were submitted to the committee by the chairman. Both the balance-sheet and the report were approved by the committee, and with good reason, as the working of the year was seen to be highly successful. The total sum of money received

during the year from premiums and other sources amounted to over £10,000, the premium income showing the valuable connexion which has been established in a comparatively short time. The actual commissions earned enabled something over £300 to be ear-marked for distribution. It may be remembered that the committee distributed £315 in November last in medical benevolence, and if its efforts are supported there is no doubt that its annual contributions will become a powerful factor in the support of our professional charities. The chairman advised in the report that it would be prudent not to distribute more than £200 of the surplus money, having regard to the uncertainties created by the war, and it was resolved that the following grants should be made, totalling £200: The Royal Medical Benevolent Fund, £75; the Royal Medical Benevolent Fund Guild, £50; Epsom College Benevolent Fund, £50; and the Royal Army Medical Corps Benevolent Fund, £25. The fund has now distributed during its short life £1275 to medical charities, while returning to insurers by way of rebates £3700. The committee has every reason to be proud of what it has accomplished, and to look forward to a greater sphere of work and utility. The energy and tact of Dr. Haslip, who has given much time and trouble to the work, deserves full recognition.

LEPROSY IN HAWAII.

SINCE 1909 a new law has been in force in Hawaii making the apprehension and detention of lepers compulsory. Every person who has reason to believe that he or any other person not under control by the state is a leper must forthwith notify the fact to the Board of Health; and anyone so reported must be examined medically, after which, if the diagnosis be established, he must be duly isolated. Notwithstanding this law difficulty is still encountered in securing the discovery of every case of the disease. In a statistical study of leprosy in Hawaii recently published in the *United States Public Health Bulletin*, No. 66, Dr. George W. McCoy gives some interesting particulars regarding the malady in this American dependency. The total number of lepers officially apprehended since 1901 has amounted to 1060, or an annual average of about 82. Of this total, 52 were Portuguese, 14 belonged to other European nationality, 13 were Americans, 29 Japanese, and 61 Chinese. About half of those apprehended were between the ages of 11 and 25 years. It is a curious fact that the incidence of the disease is almost twice as high among males as among females, the respective figures being 673 and 387. Inquiry into the previous history of the cases showed that association with leprous persons was admitted in nearly 37 per cent., and in this number the presence of the malady in a parent, brother, or sister constituted over half of the admitted association. Dr. McCoy believes that the statement frequently made—namely, that prolonged and intimate contact with leprosy is needed to bring about infection—is certainly not borne out by the facts as witnessed in Hawaii. Cases are frequently met with in which there is absolutely no history of any association with lepers. Difficulties often arise with regard to the early diagnosis of the disease before apprehension of the patient. In 188 cases the leprosy was alleged to have existed less than a year, in 131 for a whole year, in 99 for two years, in 92 for three years, in 48 for four years, and in 42 for five years. In 86 it had existed from six to 10 years, and in 49 for more than 10 years. In 20 instances it was claimed that the disease had existed the whole of the lifetime. The statement sometimes made that the malady has persisted from infancy is generally put forward for the purpose of misleading the investigator. It is encouraging to learn that the percentage in recent years of lepers apprehended early is larger than formerly. As regards the finding of the bacillus lepræ at the official medical examination, this was positive in 929 cases; in 60 it was negative, and in 71 instances no information on the point was given. It appears that nodular cases now form a larger proportion of the whole than in the past; 327 patients suffered from the anæsthetic type of the malady, 384 from the nodular, and 275 from the mixed. In 74 instances the type of leprosy was not recorded. The control of the disease places a heavy financial burden on Hawaii, and at present there is little likelihood of its becoming lighter in the future. We learn that the legislature appropriated the sum of $412,130 for the care of lepers, including permanent improvements, for the two-year period beginning July 1st, 1913.

ANTISTREPTOCOCCIC SERUM IN ACUTE BRONCHITIS.

IN another column we publish a note by Mr. J. G. Hayes on the use of antistreptococcic serum in acute bronchitis. In the three cases which he records relief followed the administration of the serum. It would be unwise to attempt to draw any conclusions from such a small number of cases; a much larger field for research would be necessary. Nevertheless, the publication of only a few cases treated by any special method may have some value as indicating the results arrived at by a particular observer, for such results may be corroborated or contradicted by other workers. Thus accumulative evidence may be obtained, which eventually may lead to a decision in respect of a therapeutic measure. It has frequently been stated that to base an opinion of any form of treatment on the observation of only a few cases can only be fallacious, and probably many observers would challenge Mr. Hayes's conclusions. The bacteriology of acute bronchitis appears to vary, and that the toxæmia of acute bronchitis is in most cases due to a streptococcus is by no means certain; the pneumococcus is also found, and in such cases antistreptococcic serum would not be indicated. If Mr. Hayes's lead is followed, it would be well to place the treatment on a more scientific basis by a bacteriological examination of the sputum before the treatment is commenced, so as to isolate, if possible, the pathogenic organism.

GERMAN PROSTITUTES IN BELGIUM.

AMONG the many questionable benefits conferred by German Kultur on Belgium appears to be a large number of syphilitic German prostitutes. So wrote the Antwerp correspondent of the Dutch journal *Het Telegraaf* a few weeks ago, commenting on the statement of the German Catholic paper, the *Kölnische Volkszeitung*, that about 180,000 cases of venereal disease had occurred in the German armies in Belgium and Northern France. The German paper made the assumption that the sources of infection were to be found among the inhabitants of the invaded countries.

The Antwerp correspondent, however, throws quite another light upon the actual state of affairs. In Belgium, as he points out, prostitution is most carefully and systematically regulated and controlled, submitted to registration and inspection; cases of venereal disease are at once submitted to hospital treatment until they are no longer infectious. Prostitutes of alien nationality are expelled and made to return to their own countries; in the case of Antwerp, over 80 per cent. of the prostitutes thus expelled are German women. If the German military authorities wish to put a stop to the prevalence of venereal disease among the German soldiers they should expel from Belgium the German sources of infection, bringing into force once more the Belgian enactments for the regulation of prostitution. The matter is not without interest for the Allies at the present moment. It is to be expected that they will be advancing along the Western battle-front before many weeks are past, and there seems to be good reason for fear lest the Allied troops and the returning inhabitants should be unduly exposed to infection with venereal disease when the country at present held by the Germans is cleared of its invaders and returns to the possession of its rightful owners.

TONIC INNERVATION.

Dr. S. A. K. Wilson describes in *Brain* (vol. xxxvii., 1914) under this title a curious, and apparently not very common, clinical condition which he has observed in three cases. Briefly, the symptom consists in inability to relax the muscles which have performed a "willed" or voluntary action, whilst direction of the subject's attention away from the act immediately "unlocks," as it were, the sustained effort. In the cases instanced the phenomenon was strictly unilateral, and involved mainly the arm muscles. There was, in all, involvement of the cortico-spinal path; in two cases the lesion was a tumour situated in, and successfully removed from, the right hemisphere. There were slight spasticity and active reflexes in the affected limbs. No sensory changes were noticeable. Tonic innervation, Dr. Wilson suggests, must be distinguished from certain examples of sustained or clonic performance of an act other than the one demanded of the patient, as also from "ideational inertia" of purely psychic origin. It may or may not be associated with apraxia (or simple inability to perform movements which automatically could be executed without difficulty), again a condition of psychic origin. The symptom is regarded, in short, as of psychomotor origin—dependent on psychic changes, especially volition, in that this element, whilst not *per se* the cause, at any rate influences the act in an obvious manner; dependent upon motor changes in that the symptom is only observed when the specific functions of the cortico-spinal tract are slightly impaired. It is noted that when the pyramidal lesion is more evident, the symptom goes; the pyramidal involvement, it appears, must not be too great. That tonic innervation is not attributable to muscle changes is suggested by the strong evidence that its contraction is of the type recognisable by galvanometric observations as characteristic of centrally innervated activity, evidence gained especially in myotonia cases which present certain clinical similarities to the condition under consideration. Where is the lesion, and what is its character? It is said to be extremely likely that the phenomenon of tonic innervation is due to a disturbance of reciprocal innervation in "willed" movements; with such disturbance the relaxation of the antagonistic muscles to those performing an act is interfered with. But this reciprocal innervation may be carried out in spine or in cortex. In the cases here recorded it is suggested that there was impairment of function of the cortico-spinal neurones from a lesion at their cortical end ..... "either the activity of the affected motor centres is directly interfered with or, more likely, the stimuli reaching them by short transcortical paths from a hypothetical psychomotor centre placed in the area in front of the precentral gyrus are interfered with." Finally, it is probable, since few cortical lesions demonstrate the sign, that a certain stage in the functional interference must be maintained.

ANNUAL CONGRESS OF THE OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.

THE annual congress of the Ophthalmological Society of the United Kingdom will be held on Thursday to Saturday, April 22nd to 24th. On Thursday morning papers will be read at the Royal Society of Medicine, 1, Wimpole-street, W.; at the afternoon sitting a discussion on Ophthalmic Injuries in Warfare will be opened by Mr. W. H. H. Jessop and Colonel W. T. Lister; at 5 P.M. the annual business meeting will be held. Friday morning will be devoted to a discussion on Detachment of the Retina, to be opened by Dr. A. Maitland Ramsay, Mr. Leslie Paton, and Mr. M. S. Mayou; in the afternoon there will be a clinical meeting at the Royal London Ophthalmic Hospital, City-road, E.C. On Saturday morning papers will be read. Members desirous of reading papers or showing cases should communicate at once with the honorary secretary, Mr. G. Coats, 50, Queen Anne-street, W. It is intended to hold an exhibition of drawings, specimens, and so on, during the meetings. Exhibits should be addressed to Mr. M. S. Mayou, 30, Cavendish-square, W.

A RECEPTION will be held by the West London Medico-Chirurgical Society at the West London Hospital on Friday, April 23rd, at 8.30 P.M., when the programme will include war exhibits, short addresses on war subjects, illustrated by lantern slides and pictures, and music. The charge for each ticket, whether for a member, a lady, or other guest, is 5*s*., and it is hoped that members of the society will subscribe even if they are unable to be present for the whole of the proceeds, after the deduction of expenses, will be transmitted as a donation from the society to the Belgian Doctors' and Pharmacists' Relief Fund. Early application for tickets, enclosing a remittance, should be made to either of the honorary secretaries, Mr. Oswald Addison, 125, Harley-street, W., or Dr. Reginald Morton, 66, Harley-street, W.

AMONG the Fellows of King's College, London, appointed on March 24th, occur the names of Sir Arthur William May, K.C.B., Director-General of the Naval Medical Service, and Sir Arthur Thomas Sloggett, K.C.B., C.M.G., Director-General of the Army Medical Service.

Colonel Sir W. B. Leishman, R.A.M.C., was personally invested by the King on March 29th at Buckingham Palace with the Insignia of a Companion of the Bath (Military Division).

THE BELGIAN DOCTORS' AND PHARMACISTS' RELIEF FUND.

THE FUND AND RELIEF MEASURES IN BELGIUM.

AT the last meeting of the Executive Committee of the Fund full information was forthcoming concerning the urgent needs of the Belgian doctors and pharmacists remaining in their own country, and at the same time a plan was considered and adopted for attempting through the medium of the Fund to alleviate this distress. In Belgium the committee formed to consider the position of the doctors and pharmacists has now been largely reinforced, and is known as the Aide et Protection aux Médecins et Pharmaciens sinistrés. The President is Dr. Péchère and the secretary M. Delacre. The body is a representative one, and has organised machinery for ascertaining where the need among those whom it would help is greatest and for providing systematic relief. It has worked in connexion with the National Relief Fund and has received from that Fund a subsidy, which is now exhausted. When the Belgian Committee was started Professor Jacobs, professor of obstetrics in the University of Brussels, came to England last November as its delegate, and it is owing to the representations which he then made that the movement in this country, and later in our dependencies and in America, was started. The Executive Committee of the Belgian Doctors' and Pharmacists' Relief Fund has always said, in appealing for subscriptions, that a part of the money which it might collect should, as early as the conditions in Belgium permitted, be distributed on the advice of the committee in Belgium. At first, however, no method of communication between ourselves and a country mainly occupied by the enemy's army was possible. Through the good offices of Mr. Herbert Hoover, the Chairman of the National Relief Fund, we were able to distribute some medical material, which was conveyed to its destination by the National Fund, but at that point we were compelled to remain until some effective machinery on the other side rendered more substantial and fruitful coöperation possible. The Aide et Protection aux Médecins et Pharmaciens sinistrés has now prepared the ground, and done so with great energy despite the immense difficulties under which it has had to work. Forms have been issued to all the doctors and pharmacists in Belgium on which they are asked to state frankly their position, that of their families, the loss that they have sustained, and the amount of money necessary to enable them, at any rate, to tide over their existing terrible circumstances. In estimating the validity of the claims the Belgian Committee has acted in consultation with the local medical societies throughout Belgium and with the Government inspectors of pharmacy, who also inspect the dispensaries of medical men. Those who have been relieved include the widows of doctors and pharmacists who have fallen fighting, or who have been the victims of German ferocity. It is noteworthy that such money as has been hitherto given has been given entirely to the country at large, although distributed from Brussels; in Brussels the better circumstanced doctors and pharmacists have supported the Fund for the relief of their poorer colleagues. Many of the forms relating to the pharmacists have reached this country and have been submitted to the Executive Committee of the Belgian Doctors' and Pharmacists' Relief Fund, and it is hoped that we shall later receive the forms relating to the medical men; but enough evidence has been submitted to the Executive Committee to enable it to realise that immediate help in money ought to be sent as this now seems feasible. With the coöperation of the banks concerned a sum of money is being sent immediately to Belgium to be distributed by the Aide et Protection aux Médecins et Pharmaciens sinistrés in accordance with the particularised needs which are now in the hands of that body; and it is proposed to send further sums from time to time as detailed reports from the Belgian Committee and other information at the disposal of the Executive Committee show that the money is being usefully expended. Subscribers to the Fund will see that the Executive Committee has now embarked upon a definite scheme of large expenditure, and, generous as the responses have been to the appeal by British doctors and pharmacists, it will be necessary that further effort should be made, and even made with greater vigour than heretofore. The Fund can do much with the money which it has in hand, but it is not possible to estimate how long the strain upon it may have to be maintained, and far greater resources than it possesses will be urgently required.

THE GIFT OF INSTRUMENTS TO BELGIAN MILITARY HOSPITALS.

It will be remembered that through the medium of Mr. S. Osborn a selection of the instruments, which have been received by Mr. Meredith Townsend, the Master of the Apothecaries' Society of London, in response to the appeal of the Fund, was placed at the disposal of certain Belgian military hospitals. Sir Rickman Godlee, the chairman of the Executive Committee, has received from Captain G. Deffontaine, writing for the Belgian Military Command in Calais from the Hôpital de Passage, a cordial letter of thanks for the instruments, while Mr. Osborn has reported to Mr. Townsend that the instruments arrived at a particularly opportune moment, when a fire had burnt out the operating theatre of the Hôpital Jeanne d'Arc.

THE APPEAL FOR SURGICAL INSTRUMENTS.

The Master of the Society of Apothecaries begs to acknowledge with thanks the receipt of surgical instruments kindly contributed by Dr. J. Jones, of Leigh, Lancashire.

THE WEEK'S SUBSCRIPTIONS.

Owing to Easter THE LANCET went to press early, and the detailed list of subscriptions for the incomplete week will be published in our next issue.

THE QUEEN AND THE LONDON SCHOOL OF MEDICINE FOR WOMEN.—The Queen, accompanied by Princess Alexander of Teck, paid an informal visit to the London School of Medicine for Women, Hunter-street, W.C., on March 24th, when Her Majesty was received by Miss L. B. Aldrich-Blake, dean of the school, Dr. Mary Thorne, Mrs. Scharlieb, and Miss L. M. Brooks, secretary and warden. Her Majesty showed great interest in the work of the students, in the site for the new extension of the school, and in the plans for the new women's military hospital which will be opened in April in Endell-street.

THE WAR AND MEDICAL PRACTICE AT SOUTHAMPTON.

(FROM OUR SPECIAL COMMISSIONER.)

Southampton, March 22nd.

WHEN it has been necessary to organise the medical profession for some common purpose the practitioners of Southampton have always shown themselves active. In the old days of the Battle of the Clubs they were well to the front. Indeed, so energetically was this battle fought that the medical aid societies and the various financial schemes based on the exploitation of medical men obtained no hold in the town. Accustomed to act in concert the practitioners of Southampton were prompt to meet to discuss the professional situation created by the war directly it was declared. On the day itself, August 4th, they held a meeting, and by August 5th a circular had been drawn up, printed, and sent round to every medical man in the district. Their action was impulsive, patriotic, and generous; whether it was altogether wise is now being discussed. The one dominating thought at the outbreak of war was that nothing should stand in the way of the practitioner whose services might be wanted at the front. Therefore all the practitioners were informed that during their absence their colleagues would look after their practices. It would be a point of honour not to attempt to capture the absentee's patients. On his return, not only would the patients be restored to him, but also he would receive all the fees which they had paid during his absence. Thus the profession at Southampton pledged itself to work gratuitously for those of its members who were mobilised. What this might entail was obviously not foreseen at the time. The fact is that the medical profession, like most other sections of the community, could not realise what war on a continental scale would mean.

The Private Practices of Surgeons with the Colours.

A small army or expeditionary force is one thing, an armed nation is a very different matter. If we had raised an extra force of half a million only above our normal or regular army the generous proposal of the Southampton practitioners might still have been practicable. But the figures now reached by our army make the economic results of the Southampton project well-nigh impossible. Before anything like the number of men now with the colours had been enrolled the effect on panel practice was marked. This, as in the case of all contract work, depends for its financial feasibility on the percentage of sound lives among the lists of insured persons. Now it is just these sound lives, the very best of them, who are enlisting; and as a panel doctor pathetically put it to me, "they leave the crocks behind." A large proportion of the new armies in course of formation consists of men who were insured, and being healthy and in the prime of life they gave their panel doctors very little trouble. To-day, it seems, panel practice means nearly the same amount of work as before the war, though there are fewer insured persons to pay for it. If, also, a panel practitioner finds he has to attend for nothing the paying patients of a fellow practitioner who has gone off to the war, he feels sore. So long as only one or two practitioners thus left their practices to the care of their colleagues, and this work was divided between several, it did not matter very much. But we have passed that stage. As the war continues and the demand for more troops ever increases the difficulty becomes apparent, and at Southamptom some medical men are already thinking that perhaps the arrangement was too hastily made. Certainly a practitioner should not lose his position, acquired perhaps after a long struggle, because in his sense of duty he has gone to the war. But if this practitioner is paid for his services in the army, and as well paid as if he had remained at home attending to his own practice, why should his colleagues do his work for nothing? Why should a practitioner be paid twice over, once for the work he has done and once again for the work he has not done? That is the question which is being formulated in Southampton; but I feel that there cannot be many practitioners who are in exactly the position indicated, for if their present army pay is better than their late professional pay they cannot have had any large private practices to be nursed for them and returned to them intact, plus a large quantity of fees.

But the arrangement made at Southampton on the very first day the war was declared calls for some revision now that the war promises to be of such extent and duration. In is felt to be unfair upon medical men who remain behind that they should give their services gratuitously and to at unlimited extent for an unlimited time. The income derived from this practice might at least be shared with the absent practitioner, a proceeding which, I believe, is being followed in some districts.

If at the end of the war and on his return home from the army the practitioner finds that his private practice has not fallen to pieces, but has been carefully and honourably preserved for him by his fellow practitioners, he will have much to be thankful for. If, over and above this, he also receives not the whole but a part of what he would have earned had he remained at home, he will, at any rate, feel that his colleagues have not been unmindful of his risks.

The Question of Dependents.

It must be admitted that practitioners at Southampton may be able to afford to be generous in a way that would be impossible in some districts, for they have not lost much in consequence of the war, but this does not mean to say that the war has brought no troubles in its train. To begin with, the two principal lines have left Southampton; the ships of the Royal Mail and the Castle Lines now sail from Liverpool and London. It is true that the families of the officers and crews have not all been able to leave Southampton to follow the ships. A house, held perhaps on a long lease, to say nothing of all the furniture, cannot be easily given up. Still, a considerable number of families connected with these great lines of passenger ships have left Southampton, and the practitioners miss these good paying patients. Then the difficulty in regard to the dependents of men who have enlisted is the same here as in many other places. Whatever may have been done or said elsewhere, all the practitioners I saw at Southampton declared they had only undertaken to attend gratuitouosly the *necessitous* dependents. But it is no easy matter to ascertain who are necessitous, and the action of the Soldiers' and Sailors' Society has added to the confusion. This society gives prescription books to members of soldiers' or sailors' families. The patient's name is put on the top of the book, and it is supposed to serve as an introduction to a medical practitioner. At Southampton some prescription books were given to people even before they were ill. Kindly ladies visiting the families of soldiers, and hearing someone say they were not quite well, would offer prescription books, and perhaps recommend their own private doctor. They did not at all realise that they were playing the part of Lady Bountiful on the cheap. Those who thus received prescription books often thought they might as well go and get a bottle of medicine, as it would not cost anyone anything except the doctor, while it was the lady who gave the prescription book who became the object of the recipient's gratitude.

The Public Medical Service.

As the dependents on soldiers are, in many cases, better off than they have ever been before, the doctors now make inquiries before giving gratuitous advice; and when they find that the patients are not in a necessitous position they are advised to join the Southampton Public Medical Service. This is the modern expression of the old Southampton Provident Medical Association which was organised by the Southampton Medical Union to fight the Friendly Societies and the speculative medical aid insurance companies. Joining this body, the former club doctors established a wage-limit and raised the subscription from 1*d.* to 1½*d.* per week. As a consequence, they lost a third of their members, but, receiving a third more pay, and were none the poorer, though they had much less work to do. Now there have been much greater alterations. The wage-limit has been altered to £3 a week, thus keeping in line with the Insurance Act, while the subscription for adults is 2½*d.* a week and for children 1½*d.* If there are more than four children the others are attended free of any charge. The members of this service can select any practitioner in the town whether he is on the panel or not, for the entire profession accepts these terms of contract practice. These are the conditions on which a great number of dependents on soldiers or sailors are now being treated. The war

has thus caused no decrease in membership. During the course of last year no less than 1100 new subscribers were enrolled, and the membership of the Southampton Public Medical Service now amounts to 8819.

War Service Rendered by Civilian Doctors.

When war was declared a large number of the officers of the Royal Army Medical Corps went with the Expeditionary Force to the continent. Thereupon the practitioners at Southampton were invited to volunteer for military service and many responded. One practitioner at Shirley went, but he had four or five colleagues living around his house to look after his practice during his absence. Another sold his practice altogether, and a third has two partners to look after his interests while he is abroad. Thus it will be seen that the work to be done near the fighting-line has not disturbed, to any serious extent, medical practice at Southampton. Of greater importance is the work that has to be done at home. Netley Hospital was denuded just as the wounded were beginning to come over from the continent. Consequently about ten Southampton practitioners and consultants went on duty at Netley for a short time. As more surgeons were enrolled, notably from London hospitals, to join the army some of them were sent down to Netley and the civilian doctors returned to their ordinary practice. But the army surgeons at Netley are not likely to remain there long. They will follow the new armies to the front, and the civilian doctors of Southampton may once again be called upon to attend the wounded at Netley. Then there are many more wounded expected, and additional hospitals are being prepared to receive them. New huts are being put up at Netley, and the large buildings recently constructed for the extension of University College at Highfield have been taken over and converted into a hospital. The new blocks of the Shirley Warren workhouse infirmary have been surrendered by the guardians for the care of the Belgian wounded, so there will be much work to be done for the war without leaving Southampton. It should also be borne in mind that extraordinary precautions must be taken to prevent Southampton becoming the port of entry of infections, especially of exotic diseases. There is plague in India and Egypt, while cholera has already spread to the Austrian army. Therefore it is satisfactory to know that a large military isolation hospital is in course of construction at Southampton.

The stress caused by the war has so far fallen lightly on the members of the profession practising at Southampton. But the time is probably very close at hand when much more work and greater responsibility will be thrown upon them, while their numbers may be reduced by further departures for the front.

UNIVERSITY COLLEGE HOSPITAL.—The annual general meeting of the corporation of University College Hospital, Gower-street, W.C., was held on March 25th, Captain the Hon. E. S. Dawson being in the chair. The chairman said that the past year had been a most eventful one all over the country in all matters connected with hospitals. In their hospital they had continued and extended their work. The number of in- and out-patients both showed small increases, yet, notwithstanding the general rise in prices and cost of living, there had been a slight decrease in the average cost of patients. To afford every possible help to naval and military medical departments not only had they reserved 100 beds for treatment of cases from the front, but all members of the staff who could be spared had, in many cases at great personal sacrifice, placed their services at the disposal of the Government. In addition many students, and no fewer than 60 members past and present of the nursing staff, had also proceeded to the front. The incorporation of the National Dental Hospital as a dental department of the hospital, the chairman continued, had been one of the notable events of the year, and this department has rendered valuable service by the treatment, free of charge, of no less than 2451 recruits for the new army. All departments of the hospital continued in a high state of efficiency, and financially, by the exercise of all possible economies, the results of the year had been slightly more favourable than they had expected. The Duke of Bedford was elected president of the corporation.

Public Health.

REPORT FOR 1913 OF THE MEDICAL OFFICER OF HEALTH AND SCHOOL MEDICAL OFFICER OF THE ADMINISTRATIVE COUNTY OF LONDON.[1]

Dr. W. H. Hamer's annual report for 1913 has recently been presented to the London County Council. It constitutes Vol. III. of the Council's general report, and has been issued under a separate cover for the convenience of readers. In the medical officer's report for 1912[2] announcement was made of a complete reorganisation of the Central Health Department consequent on the decision of the Council to coördinate, under Dr. Hamer's direction, the whole of the medical work respecting public health and education for which that authority is responsible. In that report, the first in his dual capacity, details were given of the administrative changes required by the Council's decision. A second year's experience under the new régime appears to justify the action taken. It further teaches that in similar cases wherever responsibility can be centred in one office more satisfactory results may be looked for than in those cases where responsibility is shared by separate departments.

The present report, like its predecessor, covers a very wide range, and for this reason we can only touch on a few of the more important topics therein discussed in detail. It bears abundant evidence of Dr. Hamer's assiduity in dealing with the many complex problems that require his personal attention. Having ourselves profited by its study, we earnestly commend this volume to the consideration of all those who are solicitous for the welfare of London's vast population. Equally evident is the despatch with which the extensive administrative changes in the health department have been accomplished by the central staff, and this at a time of extraordinary pressure on their resources.

Part I. of this report, which relates to public health generally, is dealt with in the present article. Administrative action for education purposes, as recorded in Part II., will form the subject of a future notice. In our remarks on the several matters discussed the order adopted in the original will be followed.

PART I.—(A) VITAL STATISTICS.

The loss of population by outward migration in recent years was alluded to in the annual report for 1912, and the subject is now more fully discussed. The population of London is still estimated to have exceeded 4½ millions in the middle of 1913. The composition of the population differs materially in the two areas into which the county is divided by the Thames. By the year 1891 London north of the river had been so greatly over-built that the rapidly increasing population could not be housed within the county boundary. Consequently, there has been since that date a constant overflow of the London population into the adjoining counties of Essex and Middlesex. But, in 1891, so much of the area south of the river remained undeveloped that the outward extension has not overflowed the county boundary to the same extent. The modifying effect of these variations on the age and sex constitution of the aggregate London population is explained in the text.

London Birth-rate.

In the year under notice the ratio of live births to population was the same as in 1912—namely, 24·5 per 1000—and thus, for the first time in ten years, no decline is recorded. This fact might conceivably be attributed to the effect of the National Insurance Act; but it is noteworthy that a similar pause in the fall of the birth-rate is reported in Paris, Amsterdam, and Stockholm among foreign capitals. In England and Wales as a whole the birth-rate increased from 23·8 in 1912 to 23·9 in 1913. In the metropolitan sanitary areas the usual wide differences persist, the proportions ranging from 9·2 and 14·2 respectively in the cities of London and Westminster to 31·0 in the borough of Bermondsey and 32·0 in Poplar. Of the success achieved under the Births Notification Act details are given in a table which shows marked differences in the extent to

[1] Published by P. S. King, Limited, London, price 2*s.* 6*d.*

[2] A notice of this report appeared in THE LANCET of April 18th, 1914, p. 1137.

which its provisions have been locally complied with. For example, whilst in Wandsworth the registered births exceeded by more than 2000 the births notified under the Act, the latter, on the contrary, were actually the more numerous in Finsbury and in some other districts.

Comparative Mortality.

The London death-rate in 1913 was equal to 14·2 per 1000 living, which is slightly above the rates of 1910 and 1912, but with these exceptions is lower than any previously recorded rate. For many years past the London health reports have contained diagrams in which the successive death-rates are represented in relation to the mean of the rates obtaining in a long series of years. In the present diagram the decline in mortality, which with few interruptions has been practically continuous since 1880, is represented by light shading. It is possible that to the casual reader the graphic method may appeal more forcibly than does the usual array of figures, inasmuch as it shows at a glance the measure of the life saving accomplished in recent years. As in previous reports, endeavour has been made to obtain by appeal to life-tables an approximate estimate of the effects on the London community of fluctuations in mortality, the method employed having been first introduced by Dr. John F. W. Tatham in his reports on the health of Manchester. The advantages of this method, together with the formulæ employed, are detailed in the London Health Report for 1901. With the help of the new London life-table the number of deaths occurring in 1913 is compared with the number that would have occurred had the death-rate prevailing in the preceding decennium been maintained in that year. The number of lives gained in the latter period are also shown, and the figures given express that gain in terms of "life capital," this being obtained by applying the mean future lifetime figures to the lives gained at each age-group. From the appended table we learn that in the year 1913, as compared with 1901–10 there has accrued a saving of 7847 lives, representing a gain to the London community of 387,897 years of "life capital."

Loss of Life in Infancy.

In the year under review the deaths below the age of one year were in the proportion of 105 per 1000 births, against 91 per 1000 in 1912, the deaths in both years showing an encouraging decline from the high rates prevailing in the opening quinquennium of the century. The report indicates that among metropolitan boroughs Shoreditch fared worst and Hampstead best in respect of infant mortality both in 1913 and in the preceding five years. Systematic examination continues to be made of the infant mortality tables prepared by district health officers in accordance with instructions from the Local Government Board. With the aid of returns derived from the improved tables first issued in 1905 comparison is now instituted between the mortality in 1913 and that of the seven antecedent years. With respect to the diseases responsible for infant fatality we note that pneumonia is the only definite heading under which excessive loss of life is recorded in 1913. With the object of illustrating the influence of social condition on infant well-being tables have been prepared in which the varying death-rates in groups of districts are contrasted. And here it must be explained that the standard adopted for determining the social condition of a district is the percentage of all children between the ages of 5 and 14 years scheduled by the Council for education purposes in the period 1905–07. The question of whether or not a child is to be scheduled depends upon circumstances which collectively form a measure of social condition. The county has been divided into five groups representing different grades of social condition—the most favoured group consists of boroughs in which less than 82 per cent. of the children were scheduled; the least favoured group, where the proportion exceeded 97 per cent. From tables relating to the period 1905–12 it appears that in each successive trimester of the first year of life the difference in the mortality obtaining in the several groups of districts becomes generally more pronounced. As an extreme instance, in 1913 it may be noted that if among infants aged 3–6 months the mortality in the most favoured districts is represented by 100 it will be equal to 202 in the least favoured districts.

Principal Epidemic Diseases.

The experience of London in 1913 under the Infectious Diseases Notification Act shows an increase in the number of cases of scarlet fever, diphtheria, and erysipelas, and a decrease in the number of cases of small-pox, typhoid fever, and puerperal fever.

Scarlet fever.—The notified cases of this disease exceeded by 6240 the number in the previous year, but the type of disease continues to be mild and the mortality rate is comparatively low. High incidence of attack is not confined to London, but has occurred in several other large towns. Mr. G. Millson, of Southwark, states that increased scarlet fever prevalence has generally been observed there in five-year cycles. The outbreak of 1913, however, followed on a quiescent period of seven years' duration. He finds that the average age of the patients has not increased in Southwark, and concludes that if a child escapes scarlet fever up to the age of five years he stands a fair chance of escaping it altogether. This question would repay attentive study.

Enteric fever.—The low level of enteric or typhoid fever prevalence maintained for several years has again been observed in 1913. For in that year, as also in 1909 and 1912, there was practically no autumnal increase. Reasons exist for the belief that the great majority of London attacks in these years were due to causes other than the drinking of polluted water. In this connexion the recent important researches of Dr. A. C. Houston, water examiner to the London Water Board, are discussed in considerable detail. In his report for 1913 this observer throws additional side-lights on the etiology of typhoid fever. He has lately repeated earlier attempts to isolate organisms resembling the typhoid bacillus in raw Thames water. In this attempt he has been successful in two instances only. But on both these occasions he has demonstrated by rigorous tests the presence of microbes indistinguishable from the typhoid bacillus. Inasmuch, however, as this result has accrued from the examination of not more than two or three dozen gallons of raw water, it is clear that the entire London water-supply may at times contain large numbers of such bacilli. And yet no one ventures to suggest that drinking water seriously contributes to the amount of typhoid fever in London. The principle is established that failure to demonstrate the presence of the bacillus in a particular specimen of water does not prove that the bacillus is not there. Moreover, experience teaches that, in any event, the presence of the bacillus typhosus is by no means the same thing as its potential infectivity. Dr. Houston discusses two problems: "Whether typhoid bacilli reach the consumer singly or in clumps; and whether one or a number are necessary to start the infective process"—problems which, as he says, are of "extreme interest to epidemiologists." He adds that "if a single typhoid bacillus ingested with a draught of water can conceivably infect with typhoid fever a susceptible individual, this would be a serious matter: but if, as seems more probable, a number are always or usually required to start the infective process, and they are present as individuals and not as 'clumps,' and are equally distributed through filtered water, infection might seldom, if ever, take place." Recent study of the bacteriology of water would appear to indicate that the observer who maintains that the bacillus typhosus is the causal organism of typhoid fever will be obliged to assume either (*a*) that something must be conjoined with the bacillus if it is to be "effective," or (*b*) that no final deduction can be drawn from the presence of single bacilli, and that insistence must be laid on the question of dosage.

Tuberculosis.

It is shown by a diagram that in both sexes a marked decline has occurred in London mortality from tuberculous phthisis; that males are more liable than females to fatal attack; and that until recent years the decline has been most conspicuous among females. A table is given showing phthisis mortality in 1913 in groups of London districts arranged in order of "social condition." If, for example, the London phthisis rate be taken at 1000, the rate in the more favoured districts will be represented by 547 and in the less favoured districts by 1389. A point of considerable importance, showing the influence of the population movement on the phthisis death-rate, is this—that in areas of better social class a greater number of London residents of the better class, than of the poorer classes, die away from Greater London. In his remarks on local variations of tuberculous mortality Dr. Hamer compares its age incidence in this country with that of Ireland, Prussia, and the United States of America. Illustrative curves have been prepared which show a

ANALYSIS OF SICKNESS AND MORTALITY STATISTICS IN LONDON DURING FEBRUARY, 1915.

(Specially compiled for THE LANCET.)

CITIES AND BOROUGHS.	Estimated population in the middle of 1914.	NOTIFIED CASES OF INFECTIOUS DISEASE.											DEATHS FROM PRINCIPAL INFECTIOUS DISEASES.									Deaths from all causes.	Death-rate per 1000 living.†
		Small-pox.	Scarlet fever.	Diphtheria.*	Typhus fever.	Enteric fever.	Other continued fevers.	Puerperal fever.	Erysipelas.	Cerebro-spinal meningitis.	Pollomyelitis.	Total.	Annual rate per 1000 persons living.	Small-pox.	Measles.	Scarlet fever.	Diphtheria.*	Whooping cough.	Enteric fever.	Diarrhœa and enteritis (under 2 years).	Total.	Annual rate per 1000 persons living.		
LONDON	4,516,612	7	1337	741	—	73	1	23	303	65	3	2553	7·4	3	280	36	70	110	16	63	578	1·7	7157	20·7
West Districts.																								
Paddington	142,055	—	22	16	—	3	—	—	12	3	—	56	5·1	—	14	1	4	8	—	1	28	2·6	238	21·7
Kensington	170,817	1	25	24	—	1	1	—	6	4	—	62	4·7	—	12	1	5	4	1	2	25	1·9	270	20·5
Hammersmith	124,750	—	58	15	—	1	—	—	6	1	—	81	8·5	—	6	2	1	2	—	2	13	1·4	187	19·3
Fulham	158,849	6	66	11	—	1	—	3	16	—	—	103	8·5	3	23	5	1	8	1	2	43	3·5	270	23·0
Chelsea	63,791	—	15	4	—	1	—	—	1	1	—	22	4·5	—	—	1	—	—	—	2	3	0·6	104	20·3
City of Westminster	152,346	—	56	33	—	3	—	—	3	3	—	98	8·4	—	3	3	—	3	—	5	14	1·2	257	23·2
North Districts.																								
St. Marylebone	112,892	—	36	2	—	2	—	1	8	—	—	49	5·7	—	2	1	—	—	—	1	4	0·5	156	18·4
Hampstead	86,731	—	18	12	—	2	—	1	1	3	—	37	5·6	—	2	—	1	—	—	1	4	0·6	99	15·8
St. Pancras	212,497	—	56	30	—	3	—	2	15	3	—	109	6·7	—	7	—	2	7	—	2	18	1·1	374	22·8
Islington	324,764	—	93	55	—	3	—	3	24	1	—	179	7·2	—	5	4	9	10	2	5	35	1·4	552	21·6
Stoke Newington	50,454	—	14	5	—	—	—	—	1	—	—	20	5·2	—	4	2	1	—	—	—	7	1·8	80	19·7
Hackney	223,724	—	43	33	—	5	—	—	19	2	—	102	5·9	—	13	—	2	2	2	3	22	1·3	331	19·4
Central Districts.																								
Holborn	45,861	—	9	8	—	1	—	—	1	1	—	20	5·7	—	3	—	1	1	—	1	6	1·7	78	22·3
Finsbury	83,212	—	19	9	—	—	—	1	5	1	—	35	5·5	—	2	—	—	2	—	2	6	0·9	147	22·7
City of London	17,129	—	4	8	—	—	—	—	—	—	—	12	9·1	—	3	—	1	—	—	—	4	3·0	30	23·7
East Districts.																								
Shoreditch	108,869	—	28	13	—	2	—	1	14	—	—	58	6·9	—	1	—	1	4	1	3	10	1·2	171	21·2
Bethnal Green	127,662	—	63	52	—	2	—	2	20	1	1	141	14·4	—	23	2	3	5	1	4	38	3·9	212	22·5
Stepney	273,265	—	91	104	—	3	—	—	21	—	—	219	10·4	—	13	4	7	1	—	3	28	1·3	408	20·3
Poplar	160,222	—	27	20	—	2	—	—	13	1	—	63	5·1	—	14	—	1	2	—	2	19	1·5	285	23·0
South Districts.																								
Southwark	186,941	—	37	29	—	—	—	1	16	3	—	86	6·0	—	29	—	3	1	—	6	39	2·7	349	24·4
Bermondsey	124,213	—	44	30	—	2	—	1	9	1	—	87	9·1	—	11	—	3	15	—	2	31	3·3	237	24·8
Lambeth	296,724	—	75	41	—	3	—	2	16	7	—	144	6·3	—	20	1	6	6	1	2	36	1·6	498	21·5
Battersea	167,338	—	52	26	—	1	—	—	12	2	1	94	7·3	—	10	1	6	7	1	3	28	2·2	274	21·5
Wandsworth	338,998	—	79	34	—	11	—	1	12	4	1	142	5·5	—	23	2	3	6	2	2	38	1·5	417	16·1
Camberwell	262,020	—	68	33	—	3	—	3	16	—	—	123	6·1	—	19	3	4	1	2	4	33	1·6	387	19·1
Deptford	109,182	—	57	20	—	8	—	—	11	2	—	98	11·7	—	5	—	—	7	—	1	13	1·6	185	21·8
Greenwich	96,037	—	94	18	—	—	—	1	7	4	—	124	16·8	—	2	—	—	3	1	—	6	0·8	149	19·9
Lewisham	172,433	—	36	28	—	1	—	—	7	2	—	74	5·6	—	6	3	1	3	—	1	14	1·1	245	18·2
Woolwich	122,836	—	52	28	—	8	—	—	11	15	—	114	12·1	—	5	—	4	2	1	1	13	1·4	197	21·4
Port of London	—	—	—	—	—	1	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—

* Including membranous croup. † The death-rates are corrected for variations in sex and age constitution of the populations of the several boroughs, the population of England and Wales being taken as the standard.

maximum incidence of mortality at ages 20–35 in Ireland, at 35–45 in England, and at 60–70 in Prussia, while the American curve exhibits two periods of high incidence—viz., at about the fortieth and seventieth years. These differences are discussed at some length in relation to fashion in nomenclature, to migration, and to varying degrees of urbanisation in the countries compared; and the conclusion is drawn that the very variable connotation of the expression "tuberculous" at different times and in different countries largely accounts for reported differences of age incidence. In support of this view attention is called to the fact that the American curve is suggestive of a blending of the English and Prussian curves; and the fact that a considerable proportion of America is of German origin is suggested as a partial explanation of this phenomenon.

I.—(B) ADMINISTRATION.

Tuberculosis schemes.—Under this heading Dr. Hamer gives account of the preliminary arrangements already in progress under the National Insurance Act for the treatment of tuberculosis. Briefly stated, the scheme contemplates the provision and maintenance of dispensaries by the borough and city councils, aided by grants from the County Council. The complete scheme for coördinating the work of the various agencies for the treatment of tuberculosis was only in draft at the end of 1913. The administrative action already taken will be summarised in the report for the ensuing year.

Health visitors.—Under the provisions of the London County Council Act of 1908 considerable progress has been made in securing a supply of suitably qualified women to give advice as to the proper nurture and management of young children. The Act makes provision for the payment of Exchequer grants in supplement of the salaries of health visitors. The Council holds that the status of health visitors should be equal to that of sanitary inspectors, and in determining the amount of subsidy they will take into account whether or not the salary proposed by the sanitary authority is commensurate with such status.

Vermin inquiry.—Increasing attention is now paid to the cleansing of verminous persons. A diagram has been prepared showing the seasonal prevalence of three kinds of vermin during the last five years. Distinct improvement has been secured.

Homeless persons.—The censuses of homeless persons taken in February and in late October show a large reduction on the numbers previously discovered. In fact, the number recorded last February was less than one-quarter of the number recorded in February, 1910, when the highest number was found.

(To be concluded.)

VITAL STATISTICS.

VITAL STATISTICS OF LONDON DURING FEBRUARY, 1915.

IN the accompanying table will be found summarised complete statistics relating to sickness and mortality in the City of London and in each of the metropolitan areas. With regard to the notified cases of infectious diseases, it appears that the number of persons reported to be suffering from one or other of the 10 diseases specified in the table was equal to an annual rate of 7·4 per 1000 of the population, estimated at 4,516,612 persons; in the three preceding months the rates were 12·5, 9·2, and 7·4 per 1000 respectively. The lowest rates in February were recorded in Paddington, Kensington, Chelsea, Stoke Newington, and Poplar; and the highest rates in Bethnal Green, Stepney, Deptford, Greenwich, and Woolwich. Seven cases of small-pox were notified during the month, of which 6 belonged to Fulham and 1 to Kensington; 5 small-pox patients remained under treatment at the end of the month in the Metropolitan Asylums Hospitals. The prevalence of scarlet fever showed no variation from that recorded in the previous month; this disease was proportionally most prevalent in Hammersmith, Fulham, Bethnal Green, Deptford, Greenwich, and Woolwich. The Metropolitan Asylums Hospitals contained 2989 scarlet fever patients at the end of the month, against 4956, 4431, and 3609 at the end of the three preceding months; the weekly admissions averaged 324, against 661, 445, and 317 in the three preceding months. Diphtheria was slightly more prevalent than it had been in January; the greatest proportional prevalence of this disease was recorded in the City of Westminster, the City of London, Bethnal Green, Stepney, Bermondsey, and Woolwich. The number of diphtheria patients under treatment in the Metropolitan Asylums Hospitals, which had been 1630, 1663, and 1621 at the end of the three preceding months, had further declined to 1562 at the end of the month; the weekly admissions averaged 172, against 247, 177, and 160 in the three preceding months. Enteric fever was much more prevalent than it had been in the preceding month; the greatest proportional prevalence of this disease was recorded in Hackney, Wandsworth, Deptford, and Woolwich. The Metropolitan Asylums Hospitals contained 64 enteric fever patients at the end of the month, against 63, 68, and 50 at the end of the three preceding months; the weekly admissions averaged 13, against 8, 10, and 6 in the three preceding months. Erysipelas was proportionally most prevalent in Paddington, Fulham, Hackney, Shoreditch, Bethnal Green, Southwark, Deptford, and Woolwich. The 23 cases of puerperal fever notified during the month included 3 in Fulham, 3 in Islington, 3 in Camberwell, 2 in St. Pancras, 2 in Bethnal Green, and 2 in Lambeth. The 65 cases of cerebro-spinal meningitis included 15 in Woolwich, 7 in Camberwell, and 4 each in Kensington, Wandsworth, and Greenwich; and the cases of poliomyelitis belonged respectively to Bethnal Green, Battersea, and Wandsworth.

The mortality statistics in the table relate to the deaths of persons actually belonging to the several boroughs, the deaths occurring in institutions having been distributed among the boroughs in which the deceased persons had previously resided; the death-rates from all causes are further corrected for variations in the sex and age constitution of the populations of the several boroughs. During the four weeks ending Feb. 27th the deaths of 7187 London residents were registered, equal to an annual rate of 20·7 per 1000; in the three preceding months the rates were 14·6, 16·7, and 19·6 per 1000 respectively. The death-rates during the month ranged from 15·8 in Hampstead, 16·1 in Wandsworth, 18·2 in Lewisham, 18·4 in St. Marylebone, and 19·1 in Camberwell, to 23·0 in Fulham and in Poplar, 23·2 in the City of Westminster, 23·7 in the City of London, 24·4 in Southwark, and 24·8 in Bermondsey. The 7187 deaths from all causes included 578 which were referred to the principal infectious diseases, of which 3 resulted from small-pox, 280 from measles, 36 from scarlet fever, 70 from diphtheria, 110 from whooping-cough, 16 from enteric fever, and 63 from diarrhœa and enteritis among children under 2 years of age. The lowest death-rates from these diseases in the aggregate were recorded in Chelsea, St. Marylebone, Hampstead, Finsbury, and Greenwich; and the highest rates in Paddington, Fulham, the City of London, Bethnal Green, and Bermondsey. The 3 fatal cases of small-pox all belonged to Fulham. The 280 deaths from measles were 116 in excess of the corrected average number in the corresponding period of the five preceding years; this disease was proportionally most fatal during the month in Paddington, Fulham, Stoke Newington, the City of London, Bethnal Green, Southwark, and Bermondsey. The 36 fatal cases of scarlet fever were 20 above the corrected average number, and included 5 in Fulham, 4 in Islington, 4 in Stepney, 3 in the City of Westminster, 3 in Camberwell, and 3 in Lewisham. The 70 deaths from diphtheria were 23 above the corrected average number; this disease was proportionally most fatal in Paddington, Kensington, Islington, Stepney, Battersea, and Woolwich. The 110 fatal cases of whooping-cough were 16 below the corrected average number; the highest death-rates from this disease were recorded in Paddington, Fulham, Bermondsey, Battersea, and Deptford. The 16 deaths from enteric fever were 5 in excess of the corrected average number, and included 2 each in Islington, Hackney, Wandsworth, and Camberwell. The mortality from diarrhœa and enteritis among children under 2 years of age was proportionally greatest in the City of Westminster, Finsbury, Shoreditch, Bethnal Green, and Southwark. In conclusion, it may be stated that the aggregate mortality in London during the month from the principal infectious diseases, excluding diarrhœa, was 41·5 per cent. above the average.

THE SERVICES.

ROYAL ARMY MEDICAL CORPS.

To be Temporary Majors:—Dated March 8th: James Arthur Devine, D.S.O. Dated March 9th: William Thomas Prout, C.M.G.

The undermentioned Temporary Lieutenants to be Temporary Captains:—Dated March 25th: Charles S. Cato, late Captain, R.A.M.C., and Walter P. Yetts.

The undermentioned to be Temporary Captains:—Dated March 1st: Charles Edward Walker. Dated March 10th: Robert Fielding-Ould.

* Including membranous croup. † The death-rates are corrected for variations in sex and age constitution of the populations of the several boroughs, the population of each being taken as the standard.

The undermentioned to be temporary Lieutenants:—Dated Feb. 28th: Arthur Wellington Matthew. Dated March 3rd: George Joseph Adams. Dated March 7th: Frederic Percy Joscelyne. Dated March 8th: George Stanley Deane, Henry Hawes Elliot, Roy Henry Rollinson-Whitaker, Alan Filmer Rook, John Sullivan, Harold Saunderson Sugars, Francis Gordon Bell, Frederick Orlando Clarke, James Keenan, Sydney Granville Tibbles, John Henry Tomlinson, Robert Lacy Kitching, Alexander Stanger Seabrooke, John Thomas Heffernan, Horace Fitzgerald Blood, and Eric Morse Townsend. Dated March 9th: Arthur Bloom and Hubert Lewis Clifford Noel. Dated March 10th: Oswald Herbert Edwards, Francis Irvine, Walter Smithies, Henry Harvard Davis, Walter Charles Campbell Kirkwood, Charles Ernest Sundell, John Dugald MacEwen, John Rodney Slack, Alfred Wallace Harvey, Timothy Sheehan, Alan Wiley, Francis Swanson Hawks, James Anderson Hutchinson, John Helby Wilkinson, Frederick Henry Rudge, Norman Gerald Horner. Dated March 11th: Douglas Compton Taylor.

SPECIAL RESERVE OF OFFICERS.

Supplementary to Regular Units or Corps: Royal Army Medical Corps.—Lieutenant Owen G. Parry-Jones is confirmed in his rank.

ROYAL NAVAL VOLUNTEER RESERVE.

The following appointments have been notified:—Surgeon Probationers: G. E. Mullins to the *Ruby*, G. B. Lowe to the *Defender*, W. F. R. Castle to the *Panther*, T. C. Wakefield to the *Owl*, J. T. Wylie to the *Shark*, F. A. V. Denning to the *Garland*, A. McA. Scott to the *Lennox*, and C. Suffern to the *Contest*.

TERRITORIAL FORCE.

Army Medical Services.

The appointment of Lieutenant-Colonel Henry G. Falkner as Assistant Director of Medical Services, with the temporary rank of Colonel, bears date Feb. 3rd.

Royal Army Medical Corps.

South Wales Mounted Brigade Field Ambulance: Major James MacK. Harrison to be Lieutenant-Colonel. Lieutenant Josiah Browne to be Captain (temporary).

3rd East Anglian Field Ambulance: Captain John R. Pooler to be Major (temporary).

3rd London (City of London) Field Ambulance: Alfred Norman George Jeans to be Lieutenant.

1st North North Midland Field Ambulance: Frank Pearce Sturm to be Lieutenant.

3rd Southern General Hospital: Captain Robert L. Gamlen resigns his commission on account of ill-health.

3rd Home Counties Field Ambulance: William Cummings to be Lieutenant.

3rd London General Hospital: Captain Sidney M. Smith is seconded.

1st London Casualty Clearing Station: Alexander Urquhart to be Lieutenant.

South Midland Casualty Clearing Station: Alexander Watkin Nuthall (late Captain, 5th Battalion, Royal Warwickshire Regiment) to be Captain.

2nd South Midland Mounted Brigade Field Ambulance: Captain Henry G. Magrath to be Major (temporary).

2nd East Anglian Field Ambulance: Captain Alister C. Young is seconded.

1st Home Counties Field Ambulance: Francis Seymour Jackson to be Lieutenant.

4th London Field Ambulance: Transport Officer and Honorary Captain Alfred J. Messent resigns his commission.

2nd Eastern General Hospital: Cyril Casson Messiter to be Lieutenant.

Attached to Units other than Medical Units.—Lieutenant Alfred J. Gibson to be Captain. To be Lieutenants: Lieutenant Lionel G. Pearson (from the 4th London Field Ambulance), Lorton Alexander Wilson, and Frank Jeffree.

SOCIETY OF MEDICAL OFFICERS OF HEALTH: SCHOOL MEDICAL SERVICE GROUP.—A meeting of the group will be held on Saturday, April 10th, at 3.30 P.M., at the society's offices, 1, Upper Montague-street, Russell-square, London, W.C. The annual meeting, postponed on account of the war, will be held at 3.30 P.M., and the general meeting immediately after tea at 4 P.M. Several items of very considerable importance to officers in the service, brought up by members or referred to the group by other official bodies, will be considered. Communications should be made to the honorary secretary of the group, Dr. A. Ashkenny, 2, London-road, Basingstoke.

Correspondence.

"Audi alteram partem."

THE WAR AND SYPHILIS.

To the Editor of THE LANCET.

SIR,—One of the results of the war which is already making itself felt is the difficulty of obtaining salvarsan or neosalvarsan, and the small stock of these preparations in this country must very shortly be exhausted. At the Lock Hospital in Dean-street, W., the demand for injections of these substances has recently been considerable, and is now far in excess of the supply which can be obtained by that institution. The average number of injections given weekly has up to recently been about 50, whereas it is now reduced to half that number, and in some instances one full dose has been divided between two cases. Consequently the institution has recently been compelled to have recourse to some of the substitutes for salvarsan, and though the results have been fairly satisfactory I am bound to say that they do not compare favourably with those obtained by the original preparations of Ehrlich. In proof of this I will mention two instances which have recently come under my observation.

CASE 1.—A patient with a secondary syphilide, who had been treated with weekly injections of "grey oil" from Oct. 31st to Dec. 12th, was found to have such symptoms of mercurialism as to render any further treatment with that drug inadvisable. Accordingly, on Jan. 2nd he was given an injection of novarsenobenzol "Billon," a French preparation which is said to be identical with neosalvarsan, and is recommended for its innocuousness. The injection was followed by only a slight immediate reaction, but at his next visit to the hospital on Jan. 9th the patient was found to be suffering from an acute dermatitis of the shoulders and hands, which in the following week was so severe as to necessitate his admission into the wards of the hospital. The dermatitis was then generalised and universal; the mucous membranes of the nose, mouth, and conjunctiva were intensely inflamed, his feet were œdematous, but there was no irritation of the intestinal tract, and the urine was normal. The dermatitis was followed by most extensive desquamation, so much so that large flakes of epidermis could be removed from the sheets of his bed literally in handfuls. He suffered from a severe purulent conjunctivitis and intense photophobia, his eyelashes were almost completely shed, as was also the hair at the back of his head. At the present time, 12 weeks after the injection, there remains an extensive xeroderma and erythema of the skin, with pustular dermatitis of the lips and hands. His condition, which at one time gave rise to the gravest anxiety, is now improving, and the prospects of his ultimate recovery are favourable.

CASE 2.—A patient suffering from secondary syphilis was admitted into the hospital on March 9th and given an injection of "kharsivan," a preparation of Messrs. Burroughs, Wellcome and Co., which is said to be identical with salvarsan; this was followed by no reaction, and he was given a second injection on March 17th. On March 19th the patient experienced severe aching pains all over the body; conjunctivitis and œdema of the eyelids and lips; diffuse and universal desquamative dermatitis, and biliuria. These symptoms are now subsiding.

My experience of these two cases leads me to think that the substitutes for salvarsan differ in their effects so far from the original preparations as to necessitate the greatest care in their employment. The two cases I have alluded to were such perfectly healthy subjects that no ill-effects could possibly have been anticipated from salvarsan treatment. In the course of an experience of this treatment extending over five years, I have never

met with any cases which were followed by such intense symptoms of arsenical poisoning, and the only conclusion I can arrive at is that, though chemically the substitutes for salvarsan may be identical with the original preparations, from the clinical point of view they differ in a remarkable manner. Not only is their toxic effect, *qua* arsenic, much more intense, but their local effect on the veins is more irritating, as was manifested by several cases of thrombosis of the injected vessel following on the use of kharsivan, even when diluted with 200 c.c. of distilled water.

It is impossible to estimate the duration of the present war, but when it does come to a conclusion there will inevitably ensue a considerable increase in the incidence of venereal diseases, and in my opinion some measures should now be organised to ensure that adequate provision is made for their treatment. I am given to understand that Messrs. Burroughs, Wellcome and Co. at the present moment are experiencing some difficulty in meeting the demand for kharsivan, and if there is any great increase in the prevalence of syphilis a considerable proportion of the sufferers will be unable to obtain what is now universally acknowledged to be the best treatment for that disease—viz., salvarsan, or, failing that, one of its substitutes. Though all departments of the Government must now be working at high pressure, I venture to think that the inevitable increase in venereal diseases at the termination of the war is a subject worthy of the attention of those to whom the health of the nation is entrusted.

I am, Sir, yours faithfully,

J. ERNEST LANE, F.R.C.S. Eng.,
Surgeon to the London Lock Hospital.

Queen Anne-street, W., March 28th, 1915.

SHOULD MEN WORK SIX DAYS OR SEVEN?

To the Editor of THE LANCET.

SIR,—At the present time, when there is urgent necessity that munitions of war should be turned out with the greatest possible rapidity, it is very important that men engaged in their manufacture should be able to do the maximum amount of work with the minimum of harm to themselves. In relation to this question I think that an experiment made many years ago by my friend, the late Lindsay Russell, Surveyor General of Canada, is of great interest. Along with Professor Pearce, who represented the United States, he surveyed the boundary line between the United States and Canada so exactly that I believe its accuracy has never been called in question. On this expedition, or some of his other surveying journeys, he and his men had to pass over great spaces where there was neither game nor fishing, and were therefore obliged to take their provisions with them. The forts at which these could be replenished were generally placed about 40 days' march from each other, and as the surveying party, on account of the weight, only took sufficient provisions for the distance and no more, they were obliged to cover it in a given time for fear of starvation. On some occasions he had men and horses and on others men and dog trains. Necessity obliged him to work his men and animals as hard as they could for seven days a week and six weeks at a time. Under this strain the horses usually gave out about the twentieth day, but the men and dogs seemed to be uninjured and only to grow harder and harder. On other occasions, however, when there was no necessity for such extreme exertion he worked his men only six days a week and allowed them to rest completely on the seventh. As he was engaged in surveying operations he knew exactly how many miles his party had travelled in a day; he knew how many pounds weight each man carried, and was thus able to calculate exactly in foot-pounds the amount of every man's daily work. On reckoning it up he found, to his astonishment, that the number of foot-pounds done by the men working six days a week was almost the same as when they worked seven days a week. Although the men were able to work seven days a week to their utmost capacity all day in the open air, and sleeping in the open air all night for seven days a week without harm, it is unlikely that men working under much less favourable conditions in a factory will stand continuous work in the same way as the surveying party. In all probability if the men work at their full capacity for six days it will be better both for them and the work they turn out that they should rest on the seventh.

I am, Sir, yours faithfully,

T. LAUDER BRUNTON.

De Walden Court, W., March 29th, 1915.

LOUIS DANIEL BEAUPERTHUY AND MOSQUITO-BORNE DISEASES.

To the Editor of THE LANCET.

SIR,—Regarding the discussion between Dr. Andrew Balfour, Dr. H. Seidelin, and myself on this subject in THE LANCET of March 6th and 27th, no one wishes to deprive Beauperthuy of all the "respect and reverence" due to him as a man and a physician, but whether he was "a very great and far-seeing physician" on the strength of his hypothesis on insect-borne diseases is the question at issue. We cannot deny that he was one of those who adhered to the idea that insects are in some way connected with diseases, but, as I have said, this old hypothesis dates from the time of the Romans. My point is that his explanation of this connexion was a wrong one—that is, he thought that diseases are caused by the venom of insects and not by their capacity to carry the virus from one person to another. Moreover, from what I have seen of his writings, he seems merely to have advanced the speculations in a non-scientific manner—that is, as so many prophets do, in the form of a categorical imperative. I much prefer King's work because, in Dr. Balfour's words, "he marshalled his theories in a more logical and careful fashion." That is the whole point. One appears to me to have been a dreamer (though more careful studies of his work may correct this impression of mine), while Dr. King appears to me to have been a man of science. Moreover, King did not think that mosquitoes cause disease merely by their venom, but evidently supposed (see p. 656 of his paper) that they transmit a Bacillus malariæ—a much more rational hypothesis. Beauperthuy's hypothesis was, as I have said, contrary to reason. I am glad that Dr. Balfour agrees with what I maintained about the difference between speculation and careful research work, and that is why I mentioned the case of Beauperthuy. It has become quite a profitable art nowadays to confuse the two, though anyone can indulge in unlimited armchair speculation, while research means much toil.

Whether Beauperthuy's "zancudo bobo" was really the Stegomyia fasciata is another question, and I hope that Dr. Balfour will let us know what

he thinks on this point when he has read the original papers. I wish that someone could find the papers on the mosquito theory: (*a*) by John Crawford, called Mosquital Origin of Malarial Disease, *Baltimore Observer*, 1807; and (*b*) by J. C. Nott on the Origin of Yellow Fever, *New Orleans Medical and Surgical Journal*, 1848. I have not been able to obtain either of them. All these theories are of considerable psychological interest. They were all partly right and partly wrong, and the true story now known to us shows how much more clever nature is than the wisest of us.

I am, Sir, yours faithfully,

Cavendish-square, W., March 27th, 1915. RONALD ROSS.

STOMACH V. HEART IN RELATION TO PRÆCORDIAL PAIN AND SUDDEN DEATH.

To the Editor of THE LANCET.

SIR,—Certain persons suffer from discomfort and pain in the præcordial region when they walk, especially uphill and soon after eating, but the moment they throw off gas from their chests or stand still their discomfort vanishes. Persons thus affected are prone to sudden death. The pain and the sudden death, when it occurs, are commonly, but erroneously, ascribed to functional or organic disease of the heart. The following case is a typical example of the class:—

The patient, aged 48 years, had always had good health except in the matter of his digestion. Sweet foods turned sour on his stomach and distended it with gas. He was a "windy" subject, but looked robust and in good flesh. A few weeks before visiting me he became conscious of a disability which seemed likely to prevent him from following his occupation, for when he walked, particularly if soon after eating, he was seized with a most disagreeable sensation in the chest, merging into pain. No evidence of cardiac disease was detected. There was no increase in the area of cardiac dulness, no abnormal cardiac sounds, dyspnœa, or œdema, no abnormality in pulse-rate or rhythm. About five weeks after this examination, after a hearty afternoon meal, the patient left the house. When about 200 yards from his own door he fell down and was picked up dead. No lesion accounting for death was found at the necropsy. All his organs were healthy. The cardiac valves were normal and the myocardium thick and free from disease. The coronary arteries were sound, save for one or two small foci of commencing ossification. Their pathological condition was such as might be expected in persons dying at the same age from indifferent complaints.[1]

The manner in which seizures affected this patient is thus described in his own words:—

When I leave home in the morning I usually feel quite well, but after walking 100 paces or more I am conscious of an uncomfortable sensation at the stomach and a desire to expel gas from the chest. I have also a feeling as if a piece of crust had become lodged in my gullet, pain creeps up from the pit of the stomach to the chest and spreads all over it, sometimes reaching the armpits, shoulders, and back, and even extending to the neck and jaws. Water gathers in my mouth and runs out upon my chin; it is neither retched nor coughed up, but comes into my mouth on its own. My eyes fill with tears; sometimes urine dribbles away from the bladder in spite of my efforts to prevent its escape. If at this time I can break wind from the chest all this discomfort vanishes in a second. So every now and then I stop and retch and throw gas from my chest, and when all is thrown off I can walk as well and as far as I ever did before. But sometimes the gas is hard and will not come up, and then a dreadful feeling comes over me; it is as if my head swims and my chest is gripped and held tight, and all strength is going from my limbs, but even when no gas comes up, if I stop walking and remain for a few seconds standing still the seizure passes off.

When asked what distance he had walked upon any occasion just after the occurrence of seizures, the patient said:

On Bank Holiday, soon after starting from home in the morning, I was taken with a seizure which was followed by two others, but after I had stood still for a few seconds and broken up wind I walked on without having to stop again and visited a friend living five miles away. That morning I walked ten miles, counting the journey there and back again, without being troubled with any pain whatsoever; indeed, I never felt better in all my life than during that walk.[2]

The fact that the patient walked ten miles just after three seizures indicates that exhaustion of reserve power of the function of contractibility is not the causal agency of these seizures.

From a consideration of the description of this seizure, and seizures of a similar kind which have occurred in other patients under my notice, it is to be remarked that segments of the medulla and cord, secretory glands, and parietal, visceral and cardio-arterial layers of muscle, take part in the manifestations of the seizure. Consequently symptoms constituting the syndrome are divisible into five groups: (1) The central nervous group comprises referred pain felt in the distributory areas of the brachial plexus and the second, ninth, and intermediate intercostal nerves, and algesia affecting scattered patches of the integuments and deeper structures of the thoracic wall and adjacent parts; (2) the secretory group comprises a voluminous flow of watery saliva and increased secretion of lacrymal glands with probably also increased urinary secretion; (3) the parietal muscular group comprises contractions of facial, intercostal and abdominal muscle, the latter contractions producing a sensation of pressure over the thoracic wall described by some as fixation or tightness of the chest walls; (4) the visceral muscular group comprises nausea, retchings, and eructations resulting from contractions of the gastro-œsophageal sheet and diaphragm; and (5) the cardio-arterial muscular group comprises vaso-constrictions, elevation of blood pressure, abnormal deviations in pulse-rate and disturbances of rhythm and sometimes total inhibition of cardiac function.

The seizure consists of the associated manifestations of these several groups of symptoms. The muscles and secretory glands which produce groups 2 to 5 inclusive are not in functional communication with one another except through the central nervous system. Hence the central nervous system furnishes the link that connects in a unity of expression the several activities that produce the seizure. The central nervous system must therefore be regarded as the seat of the predisposing cause, otherwise the activities producing the seizure would fail to combine in unitary expression. For if the heart be the seat of the predisposing cause, how are symptoms witnessed during seizures to be accounted for? If segmentary centres be healthy can impressions from the myocardium cause cramp in the recti abdominis muscles or agonising pain in the distributory regions of intercostal nerves? Can impressions generated in the myocardium cause nausea, overflow of saliva,

[1] At the necropsy made upon the "unknown" by John Hunter and described by Heberden the vessels were found healthy and the heart sound and vigorous.—Medical Transactions of the Royal College of Physicians.

[2] Cases in which long walks are taken after seizures are not infrequent. Dr. Mackenzie refers to cases of this kind in the Oliver-Sharpey lectures.

retching, eructations of gas, and vomiting? Through what mechanism can impressions emanating from the myocardium cause vaso-constriction in systemic arterioles and an elevation of blood pressure? Without an appeal to a disordered central nervous system can any disease of the heart cause instant death? Even in complete heart-block the ventricle, if robust, still bears the burden of rhythm.

It may be replied that disturbance of myocardial function causes hyper-irritability at segmentary centres of the thoracic cord, and as a result of this morbid condition the symptoms indicated above appear. But apart from the fact that dendritic connexion between the myocardium proper and segments of the thoracic cord is not open to proof, this statement merely affirms that the predisposing cause of the seizure really lies in the central nervous system, and that the remote cause of the seizure is to be found in the myocardium. The hypothesis that the myocardium is the seat of the predisposing cause is therefore an absurdity. The same method of argument is applicable to all the other alternative propositions. A confirmatory symptom is present during seizures and at intervals between them—viz., patches of algesia are found in the distribution of intercostal and spinal accessory nerves. Strands of the brachial plexuses in the posterior cervical triangle and branches of the plexuses in the arms are tender upon pressure. This symptom appears in regions where pain is never felt and at seasons when the patient is at rest and when seizures are in abeyance. In a certain case examinations have been made by me on frequent occasions during an illness of three years' duration, and in no instance has this symptom been entirely absent. But algesia shifts its ground from day to day—patches appear in a zonal area, remain in evidence for a few hours, disappear and reappear. Charts showing the distribution of patches of algesia are never found alike upon two days in succession. Precisely the same characteristics are noticed even at intervals when no seizures are occurring. It is evident that it is not the seizure which makes the patch, but that neurosis of segmentary centres determines both patch and seizure. Hence we are in a position to infer that a state of neurosis at segmentary centres is the predisposing cause of seizures, and that vagal inhibition is the cause of death.

This conclusion is important because segmentary neurosis is the predisposing cause of diseases belonging to the class of the paroxysmal spasmodic disorders associated with the musculature of the alimentary canal. In members of this class seizures occur in connexion with food-taking and gastro-œsophageal hypertonus; they also occur from mental and emotional excitement and from muscular effort; in them both visceral and parietal layers of muscle are engaged in spasm. Consequently they resemble the anginal seizure in other features besides that of predisposing cause. A neurosis attended by intercostal hyperalgesia ensues when dendritic fibres belonging to the affected centre traverse pressure zones of hyperplasias, aneurysms, new growths, and pericardial and pleuritic adhesions. Hence these diseases as well as gastric disorders may be regarded as potential remote causes of anginal pains and seizures.

I am, Sir, yours faithfully,

H. WALTER VERDON.

Streatham Hill, S.W., March 19th, 1915.

INFLUENZA OR EPIDEMIC CATARRH.

To the Editor of THE LANCET.

SIR,—As a bacteriologist I often have to suffer mental pain at the misuse of the term "influenza," and therefore I should like to record my cordial agreement with the general principles laid down in your leading article on this subject in THE LANCET of March 6th, at the same time apologising for the belatedness of this letter. I must, however, say that my experience of this epidemic appears to entirely negative the doubt expressed in the article as to the existence of a definite epidemic due to Pfeiffer's bacillus. My experience was as follows: Up to Jan. 19th I had seen no cases of recently contracted influenza infections for some months, and it would appear that at that time I was not alone in that experience, for we, at St. Mary's Hospital, were a few days prior to that date asked for a culture by the Lister Institute and were not immediately able to supply it. It was, however, supplied from a culture isolated from a case of bronchial catarrh I saw on Jan. 19th. From that date to March 1st I isolated Pfeiffer's bacillus from 14 more cases, and from March 1st to date I have isolated five more strains. The cases were not hunted for; they came in the ordinary routine of practice, and vaccines were made, or will be made, in each case but one, where a lady apparently contracted the infection from her husband and his vaccine was deemed appropriate. Other two of the cases were those of husband and wife.

My general impression has been that the epidemic, though widespread, has not produced many severe cases. Moreover, I think that the organisms have been a degree more difficult to cultivate than in former epidemics. I may say that I rely only to a slight extent on the initial impression gained by the microscopical examination of a film, and indeed I find that nothing short of the employment of an agar plate, rich in fresh blood, gives one any confidence in giving an opinion. This, I imagine, is the experience of every competent bacteriologist. The recently existing epidemic was so general that I think one was quite justified in exploiting stock vaccines of Pfeiffer's bacillus for the treatment of acute catarrhs of upper respiratory passages, to discount the delay entailed in making exact diagnosis by cultural methods.

But, Sir, if THE LANCET be doubtful as to the bacterial cause of a widely spread and definite epidemic, what expectation can there be that the profession at large is in possession of approximately accurate knowledge on the subject? It would seem that there is urgent need of some kind of bulletin for issuing information as to the bacterial cause of prevailing epidemics of catarrh.

I am, Sir, yours faithfully,

Wimpole-street, W., March 28th, 1915. JOHN MATTHEWS.

CERTAIN PECULIAR CRYSTALS FOUND IN CEREBRO-SPINAL FLUID.

To the Editor of THE LANCET.

SIR,—Dr. W. W. D. Thomson has contributed an article to THE LANCET of March 27th under the above heading, and has taken considerable pains to describe and have examined by Mr. A. R. Dwerryhouse certain crystals which he found mingled with the pus in a case of septic meningitis. I am afraid he has been led astray and fallen badly into

one of the numerous traps set for the pathologist. The crystals he describes have been deposited from the water in which the bottle or syringe has been boiled for purposes of sterilisation. I would suggest that Dr. Thomson verifies this by boiling some tap-water in a test-tube for a short time, let it cool, and then examine the deposit.

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THE MEDICAL PLIGHT OF SERBIA.—The plight of Serbia in the grip of typhus fever is serious, and unless the other nations come to the aid of this gallant little State disease will finish off what the more immediate brutalities of war have spared. We have heard through the press what Sir Thomas Lipton saw there, and on March 22nd a large meeting was held at the Mansion House in support of the Serbian Relief Fund, whose headquarters are at 55, Berners-street, W. Various units have been at work in Serbia. Lady Wimborne sent out 4 medical men and 42 orderlies and nurses on behalf of the Serbian Relief Fund, while Lady Paget, who is in charge of another unit at Uskub, is herself down with typhus fever there. Miss Hankin Hardy is in charge of a hospital at Kragnevatz, where she has 600 patients with only one Serbian lady doctor, no nurses, and four Austrian prisoners as orderlies. The death from typhus fever of Dr. Elizabeth McB. Ross, of the Scottish Hospital at this place, was recorded in our issue of March 20th. The American Red Cross has a hospital at Belgrade under Dr. Ryan and one at Gevgelija, the chief of which, Dr. Donnelly, died there from typhus fever, with two of the nurses. About 100 French doctors are said to be *en route* to Serbia to assist in stamping out typhus, and we learn that 25 officers of the Royal Army Medical Corps, under Colonel Hunter, have recently arrived in Serbia for duty. The hospital accommodation, where it exists, is of the most meagre and is filled to overflowing, and there appears to be none at all save in the most important towns, so that the patients lie out, often untended, in the streets. Stores also are deficient, not only drugs and dressings, but bedding, clothing, and all the necessary equipment for satisfactory hospital work. Typhus fever, owing to poverty, the impossibility of isolation, and overcrowding, is occurring in tens of thousands of cases, and it is to be feared, unless adequate preventive measures can be initiated, that with the advent of the warm weather cholera may succeed it. Not only on the score of humanity and present international ties through a common cause should every assistance in personnel and material be given to our courageous little ally, but even on the ground of self-interest, having in view the method by which migration of troops spreads disease, it is highly important that we should come to their aid.

Among the passengers on the Admiralty ship *Saidish*, which leaves immediately for Salonica, will be the advance guard of a hospital unit, sent by the Wounded Allies Relief Committee, Sardinia House, Kingsway, W.C. This advance guard will consist of two doctors and two nurses, armed with medical stores. Both the doctors are Belgians who have seen service in the war, while one of the nurses is a Russian lady, who is acquainted with the Serbian language and who has been doing valuable work at the Ambulance Jeanne D'Arc at Calais. The work of these forerunners will be to prepare the building provided by the Serbian Government, so that on the arrival of the rest of the unit work will begin at once.

The committee of the Wounded Allies Relief Fund asks for subscriptions towards this work, and any such will be welcomed by the honorary treasurers, the Hon. Mrs. Fredk. Guest, 26, Park-lane, W., and Mr. T. O. Roberts, manager, London County and Westminster Bank, 217, Strand, W.C. The Fund will shortly open a temporary resting-place for homeless Belgian soldiers in premises which have been lent them for the purpose.

VACANCIES FOR MEDICAL OFFICERS.—We are asked to state that a vacancy exists for a Surgeon Lieutenant (Attached) to Kent (F.) Royal Engineers, to replace medical officer detailed to take charge of an ambulance train (railway). The appointment could be for the period of the war or otherwise. The headquarters, the station of the surgeon, are near Chatham. Correspondence should be addressed to Major H. F. Stephens, O.C., K.(F.)R.E. Head Quarters, Pier-road, Gillingham.—There are vacancies for two medical officers in the 2nd Line Welsh Border Mounted Brigade Field Ambulance. Pay and allowances as in the Regular Army, also a grant for outfit and camp kit. Further particulars can be obtained on application to Major D. C. Leyland Orton, R.A.M.C (officer commanding), Thomas-street, Chester.—Two medical officers are required at once for the 1st North Midland Field Ambulance. Applications should be sent to the Officer Commanding, R.A.M.C. Depôt, 91, Siddals-road, Derby.

RUSSIAN MEDICAL STUDENTS SPECIALISING FOR THE WAR.—A correspondent informs us that, in view of the urgency for increasing the medical service, both for the army and for civil life, it is found to be necessary to interrupt the regular studies of medical students and in all universities to give them special courses in military field surgery and attention to the wounded; in the knowledge of internal complaints common in war; in military field hygiene; and in dealing with epidemics. These studies are to continue till May. The regulation examinations will be delayed so that the students may give undivided attention to these special studies.

THE DUCHESS OF CONNAUGHT HOSPITAL.—Among the many benefits to the wounded, for which this country is partly indebted to the Canadian Red Cross Society, is the hospital at Cliveden, Taplow, constructed in the covered tennis-courts at Cliveden generously given by Major and Mrs. Waldorf Astor. Early in the autumn the owners of Cliveden placed these courts at the disposal of the Canadian Red Cross Society, who have now equipped the hospital, which has 100 beds, and have supplied a staff of medical officers, nurses, and orderlies, undertaking at the same time to defray the working expenses. All the beds are now occupied by wounded British and Canadian troops. The staff consists of Lieutenant-Colonel Charles Gorrell, of the Canadian Army Medical Corps, the officer commanding, with 10 other medical officers and 20 nurses, besides orderlies, of whom 32 are medical men and 1 a dentist. The situation of the building on the heights above the Cliveden woods is admirably airy, and, the courts being covered in by a glass roof, the whole building is very light. The hospital is fully equipped with an X ray room, laboratory, and offices, and it is intended by the Canadian Red Cross Society to make provision for as many as 500 beds, enlarging the staff proportionally.

QUEEN ALEXANDRA'S HOSPITAL FOR OFFICERS, HIGHGATE.—A hospital for officers was opened last week in Millfield-lane, Highgate. It adjoins Brookfield House, which affords quarters for the staff. The hospital is composed of specially constructed temporary wooden huts, affording a separate room for each of 20 patients, and has an operating theatre, X ray room, &c. The patients' rooms open on to a balcony, so that they can be wheeled out into the air. The construction cost £5000, the plans having been given free by the architect, Mr. C. W. Ferrier. The cost of upkeep will amount to about £700 a month, of which Sir Alfred Mond, who also contributed £3000 towards the cost of building, has guaranteed £200.

RUSSIAN ENTERPRISE: CIRCULATING COUNTRY HOUSES.—The Governor of the Kieff district, we learn from a correspondent, is organising a system of circulating country houses along the Dnieper river zone for sick and wounded soldiers. For a beginning about 70 barges will be equipped, with comfortable quarters for invalids, and suitable medical supplies for them and the staff. The barges will be towed by steamers to the most suitable spots on the course of the river or of its navigable tributaries, there to remain for the periods of time judged expedient.

AUSTRALIA AND THE SHORTAGE OF DOCTORS.—On the request of the War Office about 100 Australian medical men left Melbourne for England on March 22nd, and will soon be followed by a complete hospital unit.

Sir Lambert H. Ormsby, senior surgeon to the Meath Hospital and County Dublin Infirmary, past-President of the Royal College of Surgeons in Ireland, late examiner in surgery appointed by the War Office for R.A.M.C. examinations, has been appointed honorary consulting surgeon to the New Zealand Expeditionary Force, with the rank of Lieutenant-Colonel. Sir Lambert Ormsby is a New Zealander by birth, although of Irish parents.

TRAVEL IN FRANCE.—It is interesting to note that the temporary disorganisation of railway travel in France that resulted from the outbreak of war has now been overcome, at any rate, so far as the route to the South is concerned. The P.L.M. night express between Paris, Marseilles, and the Riviera has resumed its former route and gained three hours on the whole journey. Carriages branch off at Tarascon to serve the Nismes–Montpellier–Cette district; a new night express runs between Paris and Lyons (*via*

Dijon), and the day express time is shortened by two hours; while extensions to Geneva and to Grenoble, Modane, Turin, and Rome of the Paris-Lyons service facilitate communication with Switzerland and Italy. These changes came into operation on March 23rd.

A NEW RED CROSS HOSPITAL FOR HONITON (DEVON).—At Honiton last week the Mayor formally opened the Voluntary Aid Red Cross Hospital provided by the district. It contains two wards, with 30 beds, operating theatre, &c.

Medical News.

VICTORIA UNIVERSITY OF MANCHESTER.—At examinations held recently the following candidates were successful:—

THIRD M.B. AND CH.B. EXAMINATION.

E. R. Gilmore, J. B. Leigh, and B. L. Lloyd.

SECOND M.B. EXAMINATION.

Frances G. Bullough, James Charnley, R. S. Paterson, and H. T. Savage.

DIPLOMA IN PUBLIC HEALTH.

T. F. Bamford, A. G. Bryce, D. I. Dakeyne, H. H. Proudfoot, and D. M. Wilson.

DIPLOMA IN DENTISTRY (THIRD EXAMINATION).

W. K. Lever and Herant Papazian.

DIPLOMA IN DENTISTRY (SECOND EXAMINATION).

Dental Metallurgy.—B. C. Betts, Roland Critchley, John Green, James Kershaw, H. A. Parkinson, George Stirling, A. C. Tattersall, and C. H. Travis.

Dental Mechanics.—B. C. Betts and James Kershaw.

DUBLIN UNIVERSITY SCHOOL OF PHYSIC, TRINITY COLLEGE.—At the recent Hilary examinations the following candidates were successful:—

PRELIMINARY SCIENTIFIC EXAMINATION.

Chemistry and Physics.—Patrick Casey and Athanas Blagoff.

Botany and Zoology.—William Swirles Allardyce.

INTERMEDIATE MEDICAL EXAMINATION.

Part I., Anatomy and Institutes of Medicine (Physiology).—Patrick Bernard Moloney, Thomas Scannel McDonald, Herbert James Wright, Thomas Edward Hill, Thomas Mulock Bentley, Wilfred Vincent Pellissier, Arthur Isaac Steyn, Harry Banks, William Andrew Byrn, Fleetwood William Porter Sullivan, Meta Grace Jackson, William Joseph Hamilton, and John Edmund Hill.

Part II., Applied Anatomy and Applied Physiology.—William Robert Fearon, Edward D'Arcy McCrea, Stanley Cyril Mitchell, Andrew Hope Davidson, Alexander Richard Barlas, Edward Oswald Marks, George William Bernard Shaw, Willem Petrus Lubbe, Henry James Rice, Alan Glynn Wright, Frederick Joseph Smith, Joseph Roland Brennan, Bryan Austin McSwiney, Michiel Dippenaar, Rita Henry, Patrick Rocks, Robert Wallace Nesbitt, Charles Perceval Chambers, William James McClintock, Hirsh Brill, Philip Hall, Joseph Godfrey Bird, Eileen Gertrude Gwynn, and Marie Annette Hadden.

FINAL EXAMINATION.

Part I., Materia Medica, Medical Jurisprudence, and Hygiene and Pathology.—Charles Owen James Young, Arthur Hubert Watson, Frederick John Murphy, Clotilda Bayne Bevis, William Lionel Bates, John Thorp Westby, Edward Lipman, Roland Harris Graham, Edward Parker and John James Keatley (Materia Medica and Pathology), Henry Stephen Campion (Medical Jurisprudence and Hygiene and Materia Medica), Rupert Montgomery Gordon, John Armstrong Crozier Kidd, Thomas Edward Beatty and William Hunt (Materia Medica, completing examination), and Thomas Galvin Roche and Grosvenor Leyburne Murphy (Pathology, completing examination).

Part II., Surgery.—John Speares, Herbert McWilliam Daniel, Eugene John McSwiney, Arthur Cyril Bateman, James Salmond Robinson, Andrew William Palethorpe Todd, George Stanton, Edward Mannix, Francis Albert L'Estrange, Clara Beatrice Marguerite Adderley, William Blacker Cathcart, Henry Ireland Gascoyne Rutherford, and Kathleen Dorothea Wallace.

Part II., Medicine.—Joseph Victor Cope, John Speares, Francis Sidney Mitchell, John Milo Ryan, Arthur Cyril Bateman, Isaac Whitla Corkey, William Blacker Cathcart, William Fothergill Wilson, Hilda Varian, Norman McConnell Boyce, Edmond Robinson, William McElrea Snodgrass, Geraldine Murphy, Edwin Boyers, James Salmond Robinson, Joseph Henry Cranston Walker, and Christopher Charles Albertyn.

Part II., Midwifery.—William Fothergill Wilson, George William Doran, Frederick Rowland Studdert Shaw, Thomas Stanton, Godfrey Bateman, William James Dowling, Evelyn Ross, Thomas Edward Bellingham Beatty, George Oliver Fairthough Alley, Edward Gordon Fishe, Arthur George Fisher, Grosvenor Leyburne Murphy, William Benjamin Walker, Richard William Acheson, and Cecil Francis Brady.

INTERMEDIATE DENTAL EXAMINATION.

Anatomy and Physiology.—John Henry James Stuart and Henry Erasmus Flavelle.

FINAL DENTAL EXAMINATION (B. DENT. SC.).

Hugh Theodore Alexander McKeag.

DIPLOMA IN PUBLIC HEALTH, FIRST EXAMINATION.

Walter Crane and Edward Harnett Patrick Murphy.

Experimental Physics.—Frederick William Robertson, James Sinclair Quin, Joseph Cecil Gillespie, John Gerard Holmes, Richard Counihan, Thomas Madill, Richard William Shaw, Ivan Wakefield Beatty, John Henry Brunell Crosbie, Patrick Joseph Duggan, Cecil Emrys McQuade, John Charles Joseph Callanan, William Joseph Orr, Derrick Haughton Gardiner Fishbourne, Richard Wood Power, Johannes Tobias Mynhardt, Cecil Joseph Quinlan, Gerald Fitzmaurice Keatinge, Henry Allman Lavelle, William Joseph Hogan, Richard Dominick Murphy, Albert Hugh Thompson, William Swirles Allardyce, John Cecil St. George Earl, Gertrude Price, Read Abgar Aidin, Herbert Birney, Leo Vincent Clifford, John Henry Coolican, Albert Victor Foster, Becker Fitzjames Haythornthwaite, Noelle Long, Edward Henry Montgomery, George Francis Thomas Saunders, John Farneworth Sheppard, Jacobus Frederik Van Staden, and Thomas James Russell Warren.

UNIVERSITY OF DURHAM FACULTY OF MEDICINE.—At examinations held recently the following candidates were successful:—

FIRST EXAMINATION FOR THE DEGREE OF BACHELOR OF MEDICINE.

Samuel Eric Hill Anderson, John Maurice Brydson (second-class honours), Sujan Raj Chatterji, Iris Marjorie Cheeseright, Eskander Girgis, Ibrahim Girgis, Mary Isabel Alleyne Grimmer, Gabriel Jonas Dowuona Hammond, Reginald Arthur Hickley, Donald Falconer Hocken, James Richard Hughes (second-class honours), Louis Lavine, David Levinstein, Ahmed Saleh, Hans Wilhelm Walther, and George Roebuck Woodhead.

THIRD EXAMINATION FOR THE DEGREE OF BACHELOR OF MEDICINE.

Materia Medica, Pharmacology, and Pharmacy; Public Health; Medical Jurisprudence; Pathology and Elementary Bacteriology.—Norman Alexander Martin, George Nathaniel Metzger, and Alfred Smirthwaite.

DEATH OF MR. FRANCIS ARTHUR KNOX STUART, B.A., L.S.A. LOND.—A promising career was prematurely ended by the untimely and tragic death on March 9th of Mr. Francis Arthur Knox Stuart at a Chichester nursing home, whither he was removed following a serious motor accident. While riding a motor-cycle, to which a side-car was attached, on the Chichester—Arundel road on Feb. 23rd he accidentally collided with a motor-car belonging to an Arundel medical man and sustained a compound fracture of the right leg. He never recovered from the shock; the limb was amputated, and death occurred on March 9th. Born on Sept. 27th, 1875, Mr. Stuart studied at Cambridge, where he took the B.A. degree, and at St. Mary's Hospital, London, becoming L.S.A. Lond. in 1907. At Cambridge he won distinction as a cycle-track rider and gained many trophies, while he was also an enthusiastic golfer. At the time of his death he was the senior medical officer of the West Sussex Mental Hospital at Graylingwell, Chichester. Those associated with Mr. Stuart at the hospital express profound sorrow at the untimely end of one who was held in the highest esteem in the cathedral city and district. The funeral took place at Chichester on March 12th, a service in the chapel on the hospital estate preceding the interment.

RESIGNATION OF DR. R. A. BIRDWOOD.—Dr. Birdwood, who has just retired from the post of medical superintendent of the Park Hospital, Hither Green, after 37 years' service under the Metropolitan Asylums Board, has been responsible for many reforms in the working of the service. He carried out the scheme by which small-pox patients were taken direct from their homes to ships moored down the river, and he initiated diet scales which have resulted not only in a lessened mortality, but also in a decrease of expenditure. His views were not always supported in the beginning, but experience proved to be on his side.

LIVERPOOL REFORMATORY FOR GIRLS.—Owing to an outbreak of infectious disease among the inmates of this institution the Home Secretary has certified that the premises at 36, Carlton-road, Tranmere, Birkenhead, are fit to afford temporary accommodation, six months from the date of the certificate, March 3rd, for not more than 90 girls of the reformatory.

SOCIETY FOR THE STUDY OF INEBRIETY.—The annual meeting will be held in the rooms of the Medical Society of London, 11, Chandos-street, Cavendish-square, W., on April 13th, at 4 P.M. Dr. H. Crichton Miller will open a discussion on Dual Personality and Intemperance. Each member and associate is at liberty to introduce a visitor.

Dr. Philippe Briffaux, of the University of Louvain, has been appointed house surgeon at the Dover Royal Victoria Hospital.

WE regret to announce the death of Mr. Bernard Roth, F.R.C.S., which took place on March 29th.

Appointments.

Successful applicants for vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.

HARRIS, JOHN HENRY, M.D. Durh., M.R.C.S., L.S.A., D.P.H. Cantab., Major, R.A.M.C. (T.), has been appointed Specialist in Surgery to the 4th Wessex Brigade, R.F.A., whilst temporarily stationed in India.

MCDADE, C. E., M.D. R.U.I., has been appointed Medical Officer of Health for the Borough of Battersea during the absence of Dr. G. Q. Lennane.

OATES, G. E., M.D. Lond., D.P.H. Cantab., has been appointed Medical Officer of Health for Ilford.

SCOTT, W. MACARGUR, L.A.H. Irel., L.M., L.P.S., has been appointed Medical Officer for the West Division of Liverpool.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

BARROW-IN-FURNESS, NORTH LONSDALE HOSPITAL.—House Surgeon. Salary £150 per annum, with residence, board, and laundry.

BATH, ROYAL UNITED HOSPITAL.—Resident Medical Officer.

BIRKENHEAD BOROUGH HOSPITAL.—Senior House Surgeon. Salary £120 per annum, with board and laundry. Also Junior House Surgeon. Salary £100 per annum, with board and laundry.

BIRMINGHAM GENERAL DISPENSARY.—Resident Medical Officer, unmarried. Salary £250 per annum, with apartments, attendance, &c.

BIRMINGHAM AND MIDLAND HOSPITAL FOR SKIN AND URINARY DISEASES.—Clinical Assistant for three months. Salary at rate of 52 guineas per annum.

BIRMINGHAM, ROMSLEY HILL SANATORIUM FOR CONSUMPTIVES.—Assistant Resident Medical Officer, unmarried. Salary £250 per annum, with board, apartments, and laundry.

BIRMINGHAM, YARDLEY ROAD SANATORIUM AND THE ANTI-TUBERCULOSIS CENTRE.—Third Assistant Medical Officer. Salary £200 per annum, with board and residence.

BOOTLE BOROUGH HOSPITAL.—Senior and Junior House Surgeons, Salary £150 and £130 per annum respectively, with residence. board, and laundry.

BOURNEMOUTH, ROYAL VICTORIA AND WEST HANTS HOSPITAL.—Three House Surgeons for six months. Salary £100 per annum, with board, lodging, and washing.

BRECONSHIRE COUNTY COUNCIL.—Temporary Assistant School Medical Officer. Salary at rate of £300 per annum.

BRIDGWATER HOSPITAL.—House Surgeon, unmarried. Salary at rate of £125 per annum, with board, lodging, and washing.

BRISTOL EDUCATION COMMITTEE.—Female Assistant School Medical Officer. Salary £300 per annum.

BRISTOL ROYAL INFIRMARY.—Three House Surgeons. Two House Physicians, and One Obstetric and Ophthalmic House Surgeon. Salary at rate of £120 per annum, with board, apartments, and laundry.

BURNLEY COUNTY BOROUGH.—Temporary Assistant Medical Officer of Health. Salary at rate of £400 per annum.

BURY INFIRMARY.—Senior House Surgeon and Junior House Surgeon. Salary £175 and £150 per annum respectively, with board, residence, and washing.

CANTERBURY, CHARTHAM ASYLUM.—Locum Tenens Assistant Medical Officer. Salary £7 7*s.* per week, with board, lodging, and washing.

CANTERBURY MENTAL HOSPITAL.—Assistant Medical Officer, unmarried. Salary £250 per annum, with board, lodging, washing, and attendance.

CHESTERFIELD AND NORTH DERBYSHIRE HOSPITAL.—Second House Surgeon Salary £150 per annum, with board, apartments, and laundry.

CITY OF LONDON HOSPITAL FOR DISEASES OF THE CHEST, Victoria Park, E.—Tuberculosis Officer. Salary at rate of £400 per annum, with lunch and dinner. Also Gentleman to supply the place of Members of the Out-patient Staff of Physicians who are on service in H.M. Forces.

CROYDON BOROUGH HOSPITAL.—Assistant Resident Medical Officer. Salary £150 per annum, with board, residence and laundry.

DERBY, DERBYSHIRE HOSPITAL FOR SICK CHILDREN.—Female Resident Medical Officer for six months. Salary £200 per annum.

DUDLEY, GUEST HOSPITAL.—Senior Resident Medical Officer. Also Assistant House Surgeon for six months. Salary £150 and £120 per annum respectively, with board, residence, attendance, and washing.

DUMFRIES, CRICHTON ROYAL.—Temporary Assistant Physician, unmarried. Salary at rate of 5 guineas a week, with apartments, board, laundry, and attendance.

EDINBURGH, ROYAL EDINBURGH ASYLUM, Morningside.—Assistant Medical Officer. Salary £175 per annum, with board, rooms, &c.

HALIFAX ROYAL INFIRMARY.—Second and Third House Surgeons, unmarried. Salary £120 and £100 per annum respectively, with residence, board, and washing.

HAMPSHIRE COUNTY COUNCIL.—Assistant County Medical Officer of Health. Salary £300.

HULL, VICTORIA CHILDREN'S HOSPITAL, Park-street.—Resident House Surgeon and Resident Assistant House Surgeon. Salary £60 and £50 per annum respectively, with board and laundry. Also Resident House Surgeon. Salary £100 per annum, with board and laundry.

KENSINGTON DISPENSARY AND CHILDREN'S HOSPITAL.—Resident Medical Officer. Salary £100 per annum, with board, apartments, and washing.

KENT COUNTY COUNCIL.—Tuberculosis Officer. Salary at rate of £500 per annum.

LANCASHIRE COUNTY COUNCIL, ELSWICK SANATORIUM, near Kirkham.—Medical Superintendent. Salary £300 per annum, with board, apartments, and washing.

LIVERPOOL, TOWNSHIP OF TOXTETH PARK.—District Medical Officer and Public Vaccinator for No. 1 District of the Township. Salary £500 per annum.

LONDON LOCK HOSPITAL, Harrow-road, W.—House Surgeon for six months. Salary at rate of £130 per annum, with rooms, full board, and washing.

LUTON, BOROUGH OF.—Acting Medical Officer of Health. Salary at rate of £500 per annum.

MACCLESFIELD, CHESHIRE COUNTY ASYLUM, Parkside.—Second Assistant Medical Officer. Salary £300 per annum, with rooms, board, washing, &c.

MAIDSTONE, KENT COUNTY ASYLUM.—Assistant Medical Officer, unmarried. Salary £250 per annum, with board, quarters, attendance, washing, &c.

MANCHESTER CHILDREN'S HOSPITAL, Gartside-street.—Assistant Medical Officer for Out-patient Department for six months. Salary £100 per annum.

MANCHESTER CHILDREN'S HOSPITAL, Pendlebury.—Resident Medical Officer, unmarried, for six months. Salary at rate of £100 per annum.

MANCHESTER, COUNTY ASYLUM, Prestwich.—Assistant Medical Officer, unmarried. Salary £250 per annum, with board, apartments, attendance, and washing.

MANCHESTER HOSPITAL FOR CONSUMPTION AND DISEASES OF THE THROAT AND CHEST.—Assistant Medical Officer and Pathologist. Salary £60 per annum.

MANCHESTER NORTHERN HOSPITAL FOR WOMEN AND CHILDREN, Parkplace, Cheetham Hill-road.—House Surgeon. Salary £120 per annum, with apartments and board.

MIDDLESBROUGH, NORTH ORMESBY HOSPITAL.—House Surgeon. Salary £150 per annum, with board, washing, and attendance.

MILE END OLD TOWN INFIRMARY.—Two Assistant Medical Officers. Salary £275 per annum, with board, lodging, and washing.

MILLER GENERAL HOSPITAL FOR SOUTH-EAST LONDON, Greenwich-road, S.E.—Senior House Surgeon for six months. Salary £100 per annum, with board, residence, and laundry.

NEWPORT (MON.), ROYAL GWENT HOSPITAL.—Resident Medical Officer. Salary for first six months at rate of £100 per annum, second six months £125, and third six months £150, with board, residence, and laundry.

NORTHAMPTON COUNTY BOROUGH EDUCATION COMMITTEE.—Dental Surgeon. Salary £250 per annum.

NORTHAMPTON GENERAL HOSPITAL.—House Surgeon. Salary £120 per annum, with apartments, board, washing, attendance, &c.

NORWICH, JENNY LIND HOSPITAL FOR SICK CHILDREN.—Female Resident Medical Officer for six months. Salary £150 per annum, with board, apartments, and laundry.

NOTTS EDUCATION COMMITTEE.—Female Assistant School Medical Officer. Salary £300 per annum.

OLDHAM ROYAL INFIRMARY.—Surgeon to Ear, Nose, and Throat Department. Salary £50 per annum.

PADDINGTON GREEN CHILDREN'S HOSPITAL.—Female House Physician for six months. Salary at rate of £30 per annum, with board, residence, and washing.

QUEEN'S HOSPITAL FOR CHILDREN, Hackney-road, Bethnal Green, E.—House Physician and House Surgeon for six months. Salary £100 per annum, with board, residence, and washing.

ROYAL HOSPITAL FOR DISEASES OF THE CHEST, City-road, E.C.—House Physician for six months. Salary at rate of £75 per annum, with board, lodging, and washing. Also Tuberculosis Officer. Salary £420 per annum.

ROYAL NATIONAL ORTHOPÆDIC HOSPITAL, 234, Great Portland-street, W.—Resident House Surgeon. Salary £100 per annum, all found.

ROYAL WATERLOO HOSPITAL FOR CHILDREN AND WOMEN, S.E.—Senior and Junior Resident Medical Officers. Salary at rate of £150 and £100 per annum respectively, with board and washing.

ST. MARY'S HOSPITAL FOR WOMEN AND CHILDREN, Plaistow, E.—Junior Resident Medical Officer for three months. Salary at rate of £90 per annum, with board, residence, and laundry.

SALFORD ROYAL HOSPITAL.—Junior House Surgeon and Casualty House Surgeon for six months. Salary at rate of £100 per annum each, with board and residence.

SALISBURY GENERAL INFIRMARY.—House Surgeon and Assistant House Surgeon, unmarried. Salary £100 and £75 per annum respectively, with apartments, board, lodging, and washing.

SALVATION ARMY MOTHER'S HOSPITAL, Clapton, N.E.—Female Resident Medical Officer.

SCARBOROUGH HOSPITAL AND DISPENSARY.—Senior and Junior House Surgeons. Salary £100 and £80 per annum respectively, with board, residence, &c.

SHEFFIELD CITY HOSPITALS.—Infectious Diseases and Tuberculosis Medical Officer. Salary £250 per annum, with board, lodging, and washing.

SHEFFIELD ROYAL HOSPITAL.—Assistant House Surgeon and Assistant House Physician.

SHEFFIELD ROYAL INFIRMARY.—House Surgeon and Assistant House Physician. Salary £100 per annum, with board and residence. Also Assistant House Surgeon and Assistant House Physician.

SHEFFIELD UNIVERSITY.—Joseph Hunter Chair of Pathology.

SHOREDITCH INFIRMARY, Hoxton-street, N.—Senior Assistant Medical Officer. Salary £280 per annum, with board, apartments, and washing.

SHREWSBURY, ROYAL SALOP INFIRMARY.—House Physician. Salary at rate of £110 per annum, with board and apartments.

SOUTH SHIELDS, INGHAM INFIRMARY AND SOUTH SHIELDS AND WESTOE DISPENSARY.—Junior House Surgeon. Salary £115 per annum, with residence, board, and washing.

SOUTH SHIELDS UNION.—Medical Officer of Harton Institution, Infirmary, and Cottage Homes at Cleadon. Salary £350 per annum, with rations, apartments, and attendance. Also Assistant Medical Officer. Salary £250 per annum, with rations, apartments, attendance, and laundry.

STOCKPORT UNION, STEPPING HILL HOSPITAL.—Resident Assistant Medical Officer. Salary £250 per annum, with apartments, rations,

STOKE-ON-TRENT COUNTY BOROUGH.—Female Medical Officer. Salary £300 per annum.

TAUNTON AND SOMERSET HOSPITAL, Taunton.—Senior House Surgeon. Salary £120 per annum, with board, lodging, and laundry.

VENTNOR, ISLE OF WIGHT, ROYAL NATIONAL HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST ON THE SEPARATE PRINCIPLE.—Assistant Resident Medical Officer, unmarried. Salary £150 per annum, with board and lodging.

WAKEFIELD, CLAYTON HOSPITAL.—Female Junior House Surgeon. Salary £120 per annum, all found.

WARRINGTON INFIRMARY AND DISPENSARY.—Junior House Surgeon. Salary at rate of £120 per annum, with board, apartments, and laundry.

WEST END HOSPITAL FOR DISEASES OF THE NERVOUS SYSTEM, PARALYSIS, AND EPILEPSY, 73, Welbeck-street, W.—Honorary Registrar. Also Clinical Assistants to Out-patients' Physicians.

WEST HAM AND EASTERN GENERAL HOSPITAL, Stratford, E.—Junior House Surgeon. Salary at rate of £100 per annum, with board, residence, and washing.

WEST RIDING OF YORKSHIRE.—Temporary Dispensary Tuberculosis Officer. Salary £400 per annum.

WESTON-SUPER-MARE HOSPITAL.—House Surgeon. Salary £120 per annum, with board, residence, and laundry.

Births, Marriages, and Deaths.

BIRTHS.

EVANS.—On March 23rd, at Fairfield Mount, Chesterfield, the wife of Thomas R. Evans, M.D., of a daughter.

SUCKLING.—On March 23th, at 5, Marine Terrace, Margate, the wife of John Jerome Suckling, M.B., B.S. Lond., of a son.

SWAN.—On March 26th, at Wimpole-street, the wife of R. H. Jocelyn Swan, M.S. Lond., F.R.C.S. Eng., of a son.

WHITNEY.—On March 27th, at High View, Maldon, Essex, the wife C. Underwood Whitney, L.R.C.P., M.R.C.S., of a daughter.

MARRIAGES.

MARTIN—HUNT.—On March 22nd, in Scotland, Gerald Noel Martin, Surgeon, R.N., to Agnes Margaret, third daughter of the Rev. R. G. Hunt, vicar of St. Mark's, Wolverhampton.

TYLECOTE—BODDAN.—On March 27th, at St. James's Church, Birkdale, Frank Edward Tylecote, M.D., D.P.H. Vict., M.R.C.P. Lond., Captain, R.A.M.C. (T.), to Charlotte Dora, only daughter of Mr. and Mrs. Boddan, of Hutton Dene, Heaton Mersey, and York-road, Birkdale.

DEATHS.

MACFIE.—On March 26th, at his residence, St. George's-road, Bolton, Charles Macfie, M.D., aged 65 years.

MCKERROW.—On March 25rd, George McKerrow, M.B., C.M., at Barns-street, Ayr, aged 65 years.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

BOOKS, ETC., RECEIVED.

ALLEN, GEORGE, AND UNWIN, London.
Is it to be Hate? An Essay in War-Time. By Harold Picton. With a Foreword by J. A. Hobson. Price 3*d*. net.

ARNOLD, EDWARD, London.
A Practical Handbook of Surgical After-Treatment. By Allan H. Todd, B.Sc., M.S. Lond., F.R.C.S. Eng. Price 4*s*. 6*d*. net.
An Introduction to School Hygiene. By W. B. Drummond, M.B., C.M., F.R.C.P. Edin. Price 3*s*. 6*d*.
A Surgeon in Belgium. By H. S. Souttar, F.R.C.S., Assistant Surgeon, West London Hospital. Price 8*s*. 6*d*. net.

BAILLIÈRE, ET FILS, Paris; CONSTANT TARIN, Lausanne.
La Cure de Soleil. By Dr. A. Rollier. Price 20 francs.

BIBBY, J., AND SONS, Liverpool.
Bibby's Book on Milk. Section II. Fourth edition. Price 4*s*. net.

BLACK, A. AND C., London.
Radiography, X ray Therapeutics, and Radium Therapy. By Robert Knox, M.D. Edin., M.R.C.S. Eng., L.R.C.P. Lond., Honorary Radiographer, King's College Hospital; Captain, R.A.M.C. (T.), 4th London General Hospital (in Charge of X Ray Department). Price 25*s*. net.

DANIEL, C. W., London.
Key to Health and Long Life. By F. W. Mitchell, I.S.O. Price 3*s*. 6*d*. net.

GARDEN CITY PRESS, Letchworth.
British Guiana Medical Annual for 1913. Edited by K. S Wise, M.B., B S., B.Sc. Lond., D.P.H., M.R.C.S. Eng., L.R.C.P. Lond. Price 5*s*.

GRIFFIN, CHARLES, AND CO., LIMITED, London.
Handbook of Medical Jurisprudence and Toxicology for Use of Students and Practitioners. By W. A. Brend, M.A. Cantab., M.B., B.Sc. Lond., Barrister-at-Law. Second edition. Price 8*s*. 6*d*.
Introduction to Midwifery, a Handbook for Medical Students and Midwives. By Archibald Donald, M.A., M.D., C.M. Edin., M.R.C.P. Lond. Seventh edition. Price 6*s*.

METHUEN AND CO., LIMITED, London.
Throat and Ear Troubles. By Macleod Yearsley, F.R.C.S. Price 1*s*. net.

YEAR BOOK PRESS, London.
The Public Schools Year Book, 1915. Edited by H. F. W. Deane, M.A., F.S.A., and W. A. Evans, M.A. Price 5*s*. net.

Notes, Short Comments, and Answers to Correspondents.

HEALTH OF UGANDA.

Sir F. J. Jackson, G.C.M.G., C.B., Governor of Uganda, has forwarded to the Colonial Office for presentation to Parliament a report on the Blue-book of that Protectorate for the year 1913–14. The report states that the population in March, 1914, was estimated at 2,909,122, including 1017 Europeans, (761 males and 256 females) and 3651 Asiatics. Amongst Europeans in 1913 there were 4 marriages, 25 births, and 9 deaths. The health of European officials was, on the whole, satisfactory. The average number resident during the year was 289, amongst whom there were 485 cases of illness and no deaths, as compared with 395 cases and 5 deaths during 1912. Of the admissions to hospital 155 were due to malaria, 4 to blackwater fever, and 101 to digestive diseases. The number of officers invalided since 1906 (inclusive) has been 32, the principal causes of invaliding being nervous and mental diseases (9 cases), blackwater fever (5 cases), circulatory affections (5 cases), and general debility (6 cases). A large number of cases of illness amongst the general European population are treated at the central hospital of the Church Missionary Society at Mamirembe, and statistics relating to these are not available. At Government Hospitals there were 953 cases treated, the principal disease being malaria (325 cases) and digestive diseases (196 cases). The special report on blackwater fever, which relates to all hospitals, shows 19 cases with 2 deaths, as against 9 cases and 3 deaths in 1912. The number of blackwater fever cases has increased during the last five years, but this is believed to be due entirely to the rapid increase in the susceptible population, which has outstripped the suitable housing accommodation. It was noticed that amongst Government officials, who, as a body, are comparatively better situated as regards housing, mosquito protection, and general condition of living, there was no increase of incidence and the death-rate was lower.

Returns of births and deaths amongst natives are not obtainable, but in certain districts approximate figures are supplied by the native chiefs. In the districts concerned these show a birth-rate of 24·93 per 1000 and a death-rate of 22·41. The highest birth-rate (44·6) occurs in Busoga district and the lowest (12·87) in Buganda district. The diseases which call for special attention in the native population are plague, sleeping sickness, tick fever, and leprosy. Plague prevails mainly in the Eastern province, though it occurs also in Buganda and in the districts west of the Nile. The number of deaths from this cause was 3734 in 1911, 3100 in 1912, and 3292 in 1913. Of the latter total 2154 occurred in the Eastern Province. There is no doubt that the disease has spread further afield in this Province, more particularly in the districts north of Lake Kioga. It is probable that the establishment of the cotton industry, which is instrumental in bringing very large numbers of natives together at the cotton markets, has been partly responsible for this. Moreover, it is believed that seed cotton is very well adapted to the harbouring of plague fleas, though there is some difference of opinion on this point. Preventive measures adopted are inoculation of contacts and of the population in epidemic areas with Haffkine's serum and the destruction of rats, for which a small reward is offered. The movement of seed cotton is also regulated to minimise, as far as possible, the danger from this source, and the erection of cotton ginneries in the thickly populated areas within the limits of townships is not now permitted. During 1913 there was no very serious local epidemic, but at the time of writing the report the disease had appeared in epidemic form in the port of Jinja. The population to be dealt with is spread over a very wide area and consists mainly of somewhat "raw" tribes, amongst whom it is extremely difficult to ensure that even the most elementary precautions will be taken upon the appearance of an outbreak. To combat this difficulty native "inspectors" have been appointed whose duty it is to report immediately the appearance of suspicious cases and to educate the village chiefs in the precautionary measures which can be taken by them.

The decrease in the number of cases of sleeping sickness continues, and is believed to be general, though it is less marked in Busoga and in the districts surrounding Lakes George and Edward. The deaths attributed to this disease in combined native and official returns numbered 708 in 1913, as compared with 932 in 1912. In 1905 the deaths in the Buganda province alone numbered 8003. Although the spread of this disease has been kept in check, this is entirely due to preventive measures, and the conditions

favouring its transmission are still in existence. During the year Miss M. Robertson, protozoologist, reported the presence in the Bunyoro district of a trypanosome not previously observed, resembling morphologically the T. rhodesiense, which is responsible for this disease in Rhodesia and Nyasaland. It is important to ascertain whether this trypanosome is, or is likely to become, pathogenic to man, and investigations on this point are now proceeding. So far the balance of evidence is against the conclusion that this or any other form of trypanosome infecting cattle or game in this area is a new introduction, and there is no evidence that any human being has been infected with this trypanosome.

The number of admissions to hospital on account of spirillum fever has decreased, and it is hoped that the improvement may be maintained. The disease is transmitted by a tick which finds its habitat in mud walls and in old grass huts. It is therefore especially common at wayside camps and markets where carriers gather in considerable numbers. The increase in mechanical transport has, no doubt, been partly responsible for the decrease. European travellers, by the exercise of a little care, can usually avoid contracting this disease. An attempt was made to arrange for the segregation of lepers in special settlements under the supervision of the local chiefs, but this has not proved satisfactory, and the experiment of segregating them in their own villages is now being tried. There is no reason to suppose that leprosy is on the increase. Several local outbreaks of small-pox occurred, but there was no serious epidemic. The deaths from this cause numbered 637 in 1910, 1044 in 1911, 519 in 1912, and 337 in 1913. The number of vaccinations in 1913 was 4535. The best results were obtained with local lymph made in Nairobi.

The laying out of townships and the type of building permissible have formed the special object of the sanitary authorities' attention. The general policy adopted is the reservation of a zone of 300 yards between the business and residential quarters and of a further zone of 300 yards between the European and Asiatic quarters. In new townships this is a fairly simple matter, but there is great difficulty in applying the scheme to townships where long leases have been granted and permanent buildings erected. Anti-malarial gangs are now employed at all the principal stations, who visit all compounds in search of empty tins and other receptacles likely to contain larvæ and examine gutters and water barrels and report the existence of breeding places of mosquitoes. Much improvement has also been effected by the planting of short grass and removal of jungle and scrub near the stations.

The average rainfall at 37 stations for the last 10 years is given as 43·21 inches. In the year 1913 the highest rainfall was registered at Kumi, in the Teso district, and totalled 60·20 inches, distributed over 100 days, the wettest month being May, when 12·49 inches fell. The lowest rainfall was at Mbarara, which showed 20·93 inches falling on 85 days. The rainfall at Entebbe was 56·43 inches, registered in 149 days. There is great local variation from year to year and considerable difference in the rainfall at stations not many miles apart. The "rainy seasons" are by no means regular in their occurrence, but, generally speaking, heavier rains may be expected to occur between the end of March and the middle of June, and again between the beginning of September and the end of November. The highest temperature recorded during 1913 was 104° F. at Masindi in November, and the lowest 47° F. at Fort Portal in October. The mean maximum for the year at Entebbe was 79·7° and the mean minimum 62·7°.

CHEMICALS IN RUSSIA.

RUSSIA has for a number of years chiefly made fuming sulphuric acid, sulphur salts, superphosphates, potash, alum, sulphate of soda (largely used in the glass works), muriatic acid, nitric acid, and on a small scale tin salt, lead salt, nitrites, a number of earth and other colours, tartaric acid, oxalic acid, tartar emetic, and prussiate of potash. During the last 12 years Russia has also introduced the production of toluol, trinitrotoluol, nitro-benzol, benzol, liquid oxygen, carbide of calcium, lactic acid, acetone, iodides of potassium and sodium, bromides of potassium and sodium, other iodine and bromine preparations, peroxide of hydrogen, chloroform, a series of new aniline dyes, chemically pure sulphuric, muriatic, and nitric acids, sulphide of carbon, gold and platinum salts, antimony salts, and salicylic acid. The Russian chemical industry is very irregularly distributed over the country, but the chief centres are Petrograd, Moscow, Odessa, and some of the Western Provinces. Sulphur is found in the south-east (Caucasus) and the north-east (Ural). Phosphates are plentiful in the south-west, and are in great demand for manures. The Russian Department of Agriculture has allowed the importation duty free of certain chemicals to help farmers in the eradication of field pests, namely Schweinfurth green, blue copperas, bird-lime, and bisulphide of carbon. Aniline oil and salts have been produced, but the aniline dye industry has progressed very slowly. Soap and Russian soda products are much dearer than in Germany and England.

A WARNING.

Messrs. E. and S. Livingstone, of Edinburgh, inform us that they have had complaints that medical men in Kent and Surrey have been induced by a man calling himself Johnstone to order and pay for one or more volumes of a book entitled "International Medicine," or "International Clinics," which he stated was published by "Livingston and Co.," of Teviot-place, Edinburgh. Messrs. Livingstone have put the matter in the hands of the police, and write to warn medical men that they employ no canvassers and do not publish a work with such a title. The canvasser is described as tall, thin, fair, with moustache, about 45 or 50 years of age. He carried a bag containing printed pages purporting to be samples and was shabbily dressed.

INFLUENZAL LARYNGITIS; MORBILLAR BRONCHO-PNEUMONIA; VERMIN IN THE TRENCHES AND ELSEWHERE.

IT is both curious and instructive to note how old methods arrive again as novelties. A lay correspondent writing from Manchester concerning the treatment of influenzal laryngitis gives us as a result of his own personal experience that "a gargle, consisting of one drop of iodine in a wineglass of water, swallowed after gargling, three times a day, has cured the above complaint in a couple of days." A gargarisma iodi used to be contained in many hospital pharmacopœias and possibly is now. A sherry-coloured solution of tincture of iodine in water was frequently recommended, both as a dressing and as a gargle, the latter to be swallowed after gargling. One drop of the tincture is a rather small dose—two or three would perhaps be better—in a wineglassful of water, but we are quite prepared to believe that the treatment mentioned would prove of service.—Mr. R. Bazett also writes to call our attention to "an obvious line of treatment" which he has always used in measles, a disease now more or less epidemic in London and elsewhere. The method is to paint the tonsils with a mixture of 5 to 10 minims of liquid carbolic acid with the same quantity of the old tinct. iodi in half an ounce of glycerine. He has never had broncho-pneumonia supervene in a case in which this treatment has been used from the start. The treatment has had considerable advocacy already.—Finally, Mr. John Frederick Briscoe calls attention to the danger of toxic effects attendant on the resuscitated practice of powdering the clothing with mercurial salts as a preventive of vermin, not only in the trenches but anywhere. He considers sulphur preferable as being well tried and of known utility against the epizoa (THE LANCET, Feb. 20th, p. 416), useful also against rheumatism, and when mixed with grease for scabies; while for pediculi capitis the white precipitate ointment is still the best.

HEALTH AND CLIMATE OF ST. VINCENT.

THE Hon. C. Gideon Murray (Administrator), in his report for the year 1913-14, states that the population of the island of St. Vincent is now estimated at 46,605. The births during the year numbered 1766, 61·32 per cent. of which were illegitimate, and the deaths totalled 801. The causes of death were:—General diseases (including syphilis, 96; tubercle, 51; tetanus, 10; malarial fever, 1; dysentery, 11), 211; diseases of nervous system, 32; of circulatory system, 24; of respiratory system, 51; and of digestive system, 156; parasites, 20; age, 88; stillborn, 111; other diseases, 103. During the year there were 842 cases treated in the Colonial Hospital, the death-rate being 3·92 per cent. of the total cases. The medical officer is greatly assisted in his work by the presence of an efficient European nurse-matron, selected by the Colonial Nursing Association. There were 9 inmates in the leper asylum on March 31st, 1914. Under the Public Health Ordinance, 1910, provision is made for the compulsory segregation of pauper lepers. The colony's paupers are housed in the old military buildings at Fort Charlotte. They numbered at the close of the year 79. Chronic tertiary syphilis accounts for the vast majority of cases to whom this institution offers asylum for the closing stages of their life. In the towns the authorities are realising more and more the importance of stricter sanitation and are taking steps accordingly. In the villages, however, sanitary matters are still on a primitive basis, although the Government, through their district sanitary and medical officers, spare no pains to impress upon the population generally the necessity for care in this direction.

The mean monthly temperature in 1913-14 was 78·5° F., the maximum being 80·5° in September and the minimum 73·3° in January. The rainfall for the year was 88·3 in.; rain fell on 247 days, and the maximum fall in 24 hours was 3·40 in. on Oct. 24th. Except in August and September, when the atmosphere is uncomfortably hot, although not even in those months insalubrious, the climate may be regarded as most healthy for both Europeans and coloured persons. Malaria is hardly known, while yellow fever has proved itself to be a disease of the past. "St. Vincent," adds the Administrator, "is one of the beauty spots of these West Indian Islands. With its exquisite scenery, its lovely drives, rides, and walks, its healthy climate, it cannot fail at the conclusion of the great and fearful war which at present envelopes Europe to attract to its shores some of the numerous tourists who in winter seek warmth and sunshine and an escape from the colder northern climes."

R. G. P.—The Section in question of the Medical Act applies to New Brunswick, Nova Scotia, Prince Edward Island, and Quebec. Ontario has made a move which should lead to Canadian reciprocity, as the example of Ontario will probably be followed by Manitoba and Western Canada. It is an anomaly that we have not yet attained to general reciprocity with Canada, and one that has proved inconvenient in supplementing our medical service with the Expeditionary Forces.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

Medical Diary for the ensuing Week.

SOCIETIES.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY, Society's Rooms, West London Hospital, Hammersmith-road, W.

FRIDAY.—8 P.M., Clinical Meeting. Cases will be shown by Dr. F. S. Palmer, Mr. McAdam Eccles, Dr. G. Pernet, Dr. R. Morton, Mr. O. Addison, and Dr. A Saunders.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

TUESDAY.—2 P.M., Medical and Surgical Clinics. X Rays. Mr. Baldwin: Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. Dr. Pernet: Diseases of the Skin.

WEDNESDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Pardoe: Operations. Dr. Simson: Diseases of Women. Mr. Gibb: Diseases of the Eye.

THURSDAY.—9 A.M., Dr. Bernstein: Bacterial Therapy Department. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. D. Armour: Operations. Mr. B. Harman: Diseases of the Eye.

FRIDAY.—10 A.M., Dr. Simson: Gynæcological Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Baldwin: Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. Dr. Pernet: Diseases of the Skin.

SATURDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. Mr. B. Harman: Eye Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Pardoe: Operations.

THE THROAT HOSPITAL, Golden-square, W.

MONDAY.—5.15 P.M., Special Demonstration of Selected Cases.
THURSDAY.—5.15 P.M., Clinical Lecture.

For further particulars of the above Lectures, &c., see Advertisement Pages.

EDITORIAL NOTICES.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITOR," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention should be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale, and advertising departments of THE LANCET *should be addressed "To the Manager."*

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METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, March 30th, 1915.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
Mar. 24	29·91	S.	...	78	57	50	50	51	Overcast
,, 25	30·01	N.E.	0·10	54	47	46	45	46	Raining
,, 26	29·99	N.	...	63	42	34	36	37	Cloudy
,, 27	29·75	N.E.	...	87	44	30	32	33	Fine
,, 28	29·73	N.E.	...	92	41	30	31	32	Cloudy
,, 29	29·84	N.E.	...	74	41	29	31	32	Fine
,, 30	29·81	N.E.	...	43	38	31	31	33	Fine

The following magazines, journals, &c., have been received:—Public Health, British Journal of Dermatology, Parasitology, Pacific Medical Journal, Post Graduate, Albany Medical Annals, Archives of Internal Medicine, Journal of Surgery, Pediatrics, Journal of State Medicine, Birmingham Medical Review, Journal of Nervous and Mental Disease, Homœopathic Recorder, Bulletin Mensuel de la Office International d'Hygiène Publique, British Review, Annali dell' Istituto Maragliano, &c.

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Cheques and Post Office Orders (crossed "London County & Westminster Bank, Covent Garden Branch") should be made payable to the Manager, Mr. CHARLES GOOD, THE LANCET Office, 423, Strand, London, to whom all letters relating to advertisements or subscriptions should be addressed.

THE LANCET can be obtained at all Messrs. W. H. Smith and Son's and other Railway Bookstalls throughout the United Kingdom. Advertisements are also received by them and all other Advertising Agents.

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